

AIRFIX

magazine

JANUARY 1969

FOR PLASTIC MODELLERS

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MONTHLY



**IN
THIS
ISSUE**

**Heinkel III and Avro 504 kit conversions
Panther tank and traction engine models**

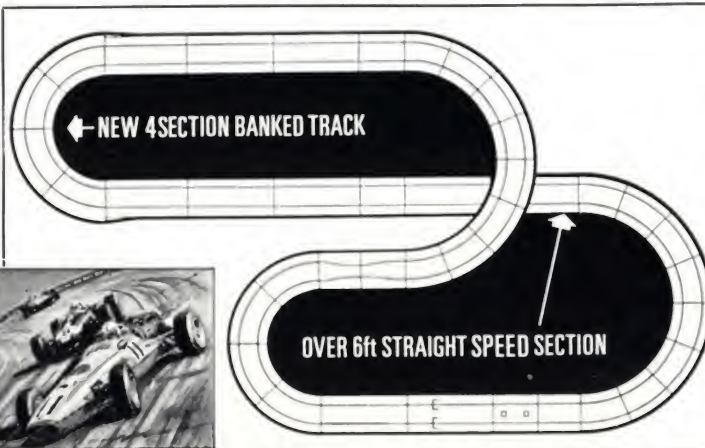
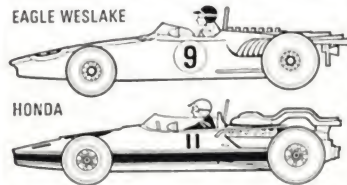
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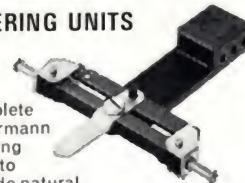
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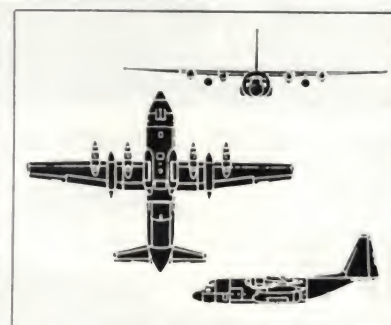


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FOR PLASTIC MODELLERS

January 1969

Volume 10 No 5

Editor Chris Ellis

Cover Picture

Influenced directly by the large scale employment of the Christie-derived BT tanks by the Soviet Army, the British decided, at the end of 1936, to produce a new generation of fast cruiser tanks developed from the Christie design. This resulted in the A13 series, of which the final version, A13 Mk III, was an attempt to provide a lower profile and more power than the earlier models. Designated Cruiser Tank Mk V and called the Covenanter, it had a new Meadows flat-12 engine instead of the original Liberty unit in order to reduce overall height. The Covenanter was built by the LMS Railway Co and appeared in 1940, but proved to be a failure, due mainly to unsatisfactory engine cooling. It never saw combat service, but equipped armoured divisions in Britain in the dark 'invasion scare' days of early 1941, and was also widely used for training, an alternative design, the Crusader, gaining much more fame. Our picture, taken in 1942, shows a Covenanter troop concealed behind a copse, the nearest vehicle complete with 'B' Sqn markings and the RAC flash. Of special interest are the short-lived tank helmets issued to crews at this period.
(Imperial War Museum)

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BUREAU OF CIRCULATIONS

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SINCE the introduction of the first cross-channel air ferry in 1948 the fortunes of the several companies involved have varied considerably. Some have ceased operations, others have merged or been created from existing organisations and, in all, they have had some difficult times.

In recent years, competition from British Rail ferries with vastly increased services, and more recently the introduction of hovercraft, must have had some effect on the pattern followed by the air carriers. The Channel Tunnel is a firm possibility and the constantly changing attractiveness of modes and conditions of travel to the Continent have all served to make the present company, British Air Ferries, to look closely at their policy.

It was with these thoughts in mind, and the fact that very little has been written recently about the Bristol Super Freighter (which as a kit when it was released several years



ago was an immediate winner for Airfix), that I went to see for myself how the present day operations are conducted.

Increased business

I DISCOVERED that although there have obviously been changes in policy, the fact that British Air Ferries, one of the Air Holdings Group of Companies, has actually increased its business in the last few years is significant. In a speech given at a Southend dinner recently, BAF's General Manager, Mr D. J. Platt, said that in the first nine months of 1968 the company had carried over 115,000 passengers, 17,000 cars and 9,000 tons of freight on its scheduled routes to Holland, Belgium and France. In spite of unrest in France, car traffic to and from Holland and Belgium has shown a substantial increase and was up by 7 per cent on previous years. Passenger traffic increased by 27 per cent during the same period.

The passenger figures given are significant and show how company policy is changing. Whereas passengers used to be



Above: 'VR Valiant of BAF arrives at Le Touquet. Passengers proceed to the Customs, to be followed shortly by their cars.



Top: Mini-into-Major. One of the five-car load of Carvair 'KG being loaded on the Hylo lift at Southend. Above: Car loading at Lydd. Peak services of 35 round trips a day are managed during the summer months.

incidental to the carriage of vehicles, there is now a trend towards short cross-channel trips by an increasing number of passengers and the charter service completed 800 hours of flying during the same year. Since cross-channel air ferries began more than 2,000,000 passengers have been carried and 500,000 cars.

Short-haul freight operations are also becoming a speciality of the air ferry. Manufacturers in the South of England industrial areas have been quick to realise that it is possible to transport goods to the Continent without having to get container wagons from British Rail and take elaborate precautions to prevent theft or damage. For example, an East End dress manufacturer has recently been shipping his wares to Holland still on the dress stands on which the goods were placed after they were made. Up-to-date fashions have literally been made in the factory during the morning and on sale in Holland in the afternoon, so quick and efficient has the service become. On the other hand, heavy machinery has been transported with ease and speed by charter freight flights. A ship's engine was recently sent to its destination by air and became one of the heaviest loads that the Carvairs from Southend have carried as it weighed five tons.

British Air Ferry operations will shortly be centralised at Southend. The Head Office has moved there and, because of the growth in traffic, ticket facilities, passenger reception and main freight handling has been concentrated in this area. At the moment, BAF employ more than 200 staff. There is also a hint that the operating fleet will be increased in 1969.

Personal service

THERE are two great advantages, in my own opinion, for crossing the Channel by air from Southend. Firstly, the access from anywhere in South-east England is made much easier by the double carriageway road from London and, secondly, you get a personal service which cannot be offered by the boats. From the time of booking in at Southend reception your car is handled by their competent staff and

you do not see it again until it is time to leave the airport at the end of your air journey.

I was able to fly from Southend to Calais and did the return trip from Le Touquet to Lydd to see how the Freighters were getting on since the days of Silver City Airways.

It was my first experience of Carvair travel. The aircraft, a conversion from a DC-4, carries five medium or six small cars and 23 passengers. Loading is achieved by a Hylo lift designed and built by another Air Holdings company, Aviation Traders. The Carvair conversion is also done by this firm and has been adapted to a mixed cargo/passenger role by having a movable bulkhead and palletised seating so that the configuration can be changed rapidly as required.

The aircraft is 45 mph faster than the Bristol Freighter, which operates from Lydd, and it has an operating range of 1,500 miles from Southend, making medium-range charters well within its scope. Five Carvairs are operated by BAF though there are now three, including the prototype 'NYB, stored in preserved retirement at Lydd.

The Calais run in 'SDC was uneventful although the winter rain and low cloud brought the approach to Calais' short single runway down to minimum conditions. The Carvair's cockpit is extremely roomy and Captain Thompson, the pilot, explained that the idea was that slip crews could be carried on long haul charters which avoided the problem of stopovers for sleep and rest.



There are 120 scheduled car ferry services each week during the winter months from Southend to destinations at Calais, Ostend and Rotterdam.

Looking at the Freighter

SOUTHEND, like Le Touquet, the principal continental destination for the Super Freighters, is owned and operated by the local town authorities. So successful have they been in their operations since the main terminal building was opened in 1960 that a new air traffic control building is about to be opened to cope with the rush.

The airport is one of the main entry points into France for the host of light aircraft that now use the low level corridor across the Channel. I found that even on a winter weekend, Piper and Cessna single- and twin-engined aircraft arrived at a rate of one every ten minutes from the North which, combined with the movements of the Super Freighters, set up a very steady traffic flow. They came from as far afield as Luton and Kidlington, either stopping off for lunch or going on to other European destinations as soon as they had refuelled.

Le Touquet now has ILS, and full area surveillance radar permitting all-weather operations. A rail terminal has been opened on the Etaples side of the airfield and regular services operated by BUA Heralds from Gatwick use the facility. If you have time to spare it is one of the best ways to get to Paris, as far as cost is concerned. The service operates from Victoria Station to Gatwick, by air to Le Touquet and then by train on to Paris in a journey time of about four and a half to five hours.

January, 1969



Left: Fifteen minutes on the ground and 'AV' is on the way back to Lydd with another load of cars and passengers. Above: The new air traffic control building at Le Touquet with Jodel DR250 F-BMZK getting ready to leave for England. The new tower should be open early next year. Top: One way to make sure that nobody steals your aeroplane; paint the portraits of the owners on the tail! Jodel D.92 F-PHLJ at St Omer airfield.

Five round trips are operated by the Super Freighters from Lydd each day. During the summer months this can increase to 35 trips a day with the aircraft being turned round just as quickly as possible throughout daylight hours. Aircrew get little time to relax as no sooner than they have reached operating height of between 1,500 and 2,000 feet, they are at the mid-channel point and have to start the descent on the opposite airfield. Senior captains who started with Silver City Airways before they merged with British United Airways are amongst the most experienced aircrew in the world at landing and taking-off heavy laden aircraft.

Retired Freighters

APPROACHING Lydd from the air, one can see a large number of aircraft parked all round the hangar area. Most of these are mothballed Freighters and Carvairs and included G-ANMF, Silver City's original Mk 21 Freighter, with its short nose, plus Super Freighters 'NVS' and 'NWJ' and Carvairs 'RSD', 'NYB' and 'OFW'. Also present were Air Ferry's DC-6s 'PNP' and 'PNO', liberally daubed with crimson anti-corrosion paint.

At the present time, BAF operate five Super Freighters 'PAU', 'NVR', 'NWK', 'MLP' and 'PAV'. Their French associates CAT (Compagnie Air Transport), who took over some of the ex-Silver City Freighters, have F-BPIN, 'BPIM' and 'BLHH' on the same routes.

Although still fully serviceable, the Super Freighters, and for that matter some of the Carvairs, are getting a little long in the tooth. British Air Ferries must eventually get replacement aircraft but where these will come from no one knows. Aviation Traders have considered a Dart-engined conversion of a DC-7, but this did not go much beyond the drawing board stage. Conversions to the Britannia have also been considered, I understand.

NEWS FROM AIRFIX

The world's greatest value in construction kits

- IL-28 'Beagle'
- 'Schools' Class Locomotive
- Mercedes-Benz 280 SL
- Handley Page Hampden

PRODUCED at about the same time and for the same duties as Britain's English Electric Canberra, the Russian Ilyushin IL-28, twin-engined light bomber was put into production in 1948 and subsequently made in thousands in the USSR and Czechoslovakia. Unlike the Canberra, however, the IL-28 has guns—fixed forward cannon and flexible tail armament.

This 89 part, 1:72 scale kit in Series 4 has fully retractable landing gear and movable control surfaces. Wing tip fuel tanks are included, although they need not be fitted.

The 580 mph IL-28 was taken into service by fifteen national air forces in the Eastern Bloc and, despite the ageing design, is still operational in the Soviet Air Force and those of Poland, Czechoslovakia, China, East Germany, Hungary, Indonesia, North Korea, Rumania and the United Arab Republic. To NATO it is known as the Beagle.

Illustrated assembly instructions are included with each kit, which also contains colour schemes and transfers for IL-28s at present in service with the air forces of Czechoslovakia, Poland and the Chinese People's Liberation Army. Price of the kit is 7s 11d.

MODEL railway enthusiasts, always keen for new locomotives, will find much to please them in the new Airfix kit of Maunsell's Class V 'Schools' of the Southern Railway. Forty of these 4-4-0 locomotives were built and they were all named after famous schools. The 72 part kit makes a fully-detailed, OO gauge model of No 919 Harrow with British Railways' number 30919 and the large chimney introduced by Maunsell's successor, O. V. Bullied.

Each kit part is numbered and may be easily related to the three groups of 'exploded' drawings incorporated in the



The Airfix IL-28 finished in Czech markings.

assembly instructions. Working buckeye and pin-and-hole couplings and non-working scale couplings are included and the draw-bar has two coupling positions.

Painting instructions and cab number plates and nameplates for either 919 or 30919 are included in the kit, together with the British Railways' emblem and the alternative SOUTHERN lettering for the 4,000 gallon tender.

This kit in the OO Scale Series 4 is priced at 7s 11d.



The new Airfix Hampden model.

THE name Mercedes-Benz has been synonymous with luxury, high performance motoring throughout this century and cars of the marque have won distinction in every branch of motor sport. Now Airfix have introduced a 1:32 scale kit of the magnificent 280 SL sports car.

The kit of 88 parts in the Modern Cars, Series 2 range, can be assembled to produce two versions of the 280 SL: a hard top coupé, or a roadster with the flush-folding soft top erected or lowered. Each kit part is numbered to facilitate easy recognition, and the stage-by-stage instructions incorporate four groups of 'exploded' drawings and painting instructions. Price is 3s 8d.

THE Handley Page Hampden—widely known as the 'Flying Suitcase'—is the latest aircraft in the Airfix Series 4 range of 1:72 scale aircraft construction kits.

This new 123 part Airfix kit makes a Hampden B1 of 49 Squadron in the 1941 period. Many variations of the aircraft are possible as alternative DF Loops, long and short exhausts and spinners for the B1 version are included in the kit. The dorsal transparency can be assembled either closed or in the open position when a pair of Vickers 'K' machine guns protrude. The bomb bays may be left open or shut and the landing gear in the raised or lowered positions.

Despite the age of its design, the 'Flying Suitcase' was still in service as a torpedo-bomber with Coastal Command in 1943 and Hampdens were represented on the first 1,000-bomber raid on Germany. Price of the kit is 7s 11d.

AIRFIX magazine

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Text by Heiner Emde Drawings by Carlo Demand

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204 pages, 12" x 10½", 93 full-colour drawings, 93 plans and elevations, 93 1:100 scale halftone drawings, 19 two-tone illustrations, etc.

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HOW TO GO PLASTIC MODELLING

(2nd printing)

by Chris Ellis

(Editor, Airfix Magazine)

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Char B tank

SCRATCH-BUILDING PROJECT IN 1:76 SCALE

by KENNETH M. JONES

THE Char B is an ideal scratch building project for the beginner as, except for the idlers and sprockets, it must be built completely from 'raw material'. The recommended plastic card thicknesses are shown in the exploded view so I shall not repeat them in the text.

Mark out the parts for the inner hull and drill the hull top for the turret pivot pin, emboss any rivets with a pin from behind, if required, before cutting out. Note that the driver's compartment forms part of the left side plate. Assemble from the floor upwards, bracing the joints with scrap materials or triangular gussets.

Mark out the four pieces which make up the outer hull side plates. If rivet detail is required, it is advisable to 'plate' the sides with thick paper or 10 thou plastic card, on to which the rivets can be embossed before cementing. Assemble the sides, spacing with

scrap materials to the required width.

Each idler is from two Airfix Tiger I road wheels, detailed sides outwards, cemented in place. The sprockets are from the same source. Remove the 'boss' from the inner Tiger drive sprocket and blank the opening with a plastic card disc. Cement it carefully into position as shown on the plan.

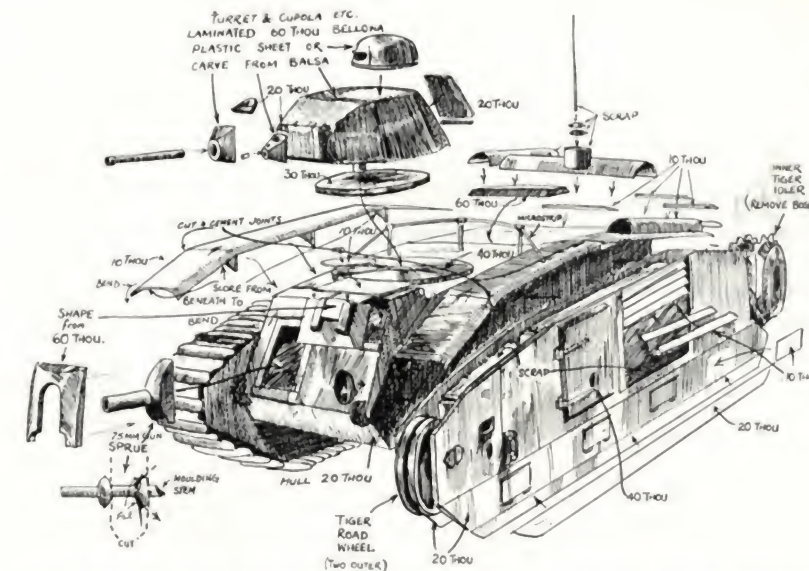
Cement the outer hull components to the inner hull, lining up very care-

fully. Detail the completed hull to your requirements; there is enough to suit all degrees of taste. I suggest you omit any rivets, rails, grilles, or pipes which seem too difficult for you. The track guards are worth a mention regarding their curved edges. Brush liquid cement along the underside and bend to shape gently. Where they slope downwards nick the join and overlap the outer edges. When finally

dry these can be sanded smooth. Practice on a piece of scrap plastic card first. Alternatively, use thick plastic card and chamfer the edges to produce the curved effect. The exhaust pipe covers can be formed the same way whilst curved round a piece of dowel. A quick and simple method of obtaining the hull 75 mm gun is shown in the exploded view. It should be a snug fit in the mantlet, which is sanded from thick plastic card.

The turret can either be carved from balsa or laminated from thick plastic card layers. Build up discs of card the size of the turret floor, consulting both plan and side elevations. Cement together, allowing the cement to run out of the joints to seal them and act as a filler when finally sanding to shape.

When the assembly has finally dried out, sand to shape and fill any gaps with body putty. The cupola and gun mountings can be formed the same way. I had intended to mould the turret from plastic sheet, but the size of the turret did not seem to make it worth while. Detail the turret after drilling a hole for the pivot pin, ensuring that you obtain a perfect fit between the cupola base and turret roof. Always try to get a good finish to the upperworks of your vehicles as these parts are immediately on view and can mar the overall effect.



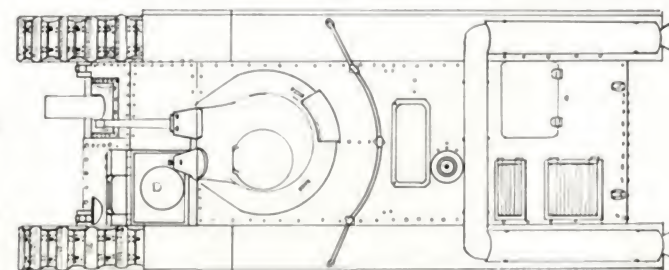
Study this exploded view carefully for method of assembly. Entire model is from card or plastic card except where indicated.

The Holt type tracks must be scratch-built or you could adopt the Airfix Churchill or 1916 Mk I tank tracks. Actually the Char B's type of suspension was used for the Churchill prototype. I filed mine from 40 thou plastic card, which is a tedious job, using needle and rat-tail files. The choice is entirely yours in this respect. Advanced modellers will find no difficulty in making tracks, beginners are

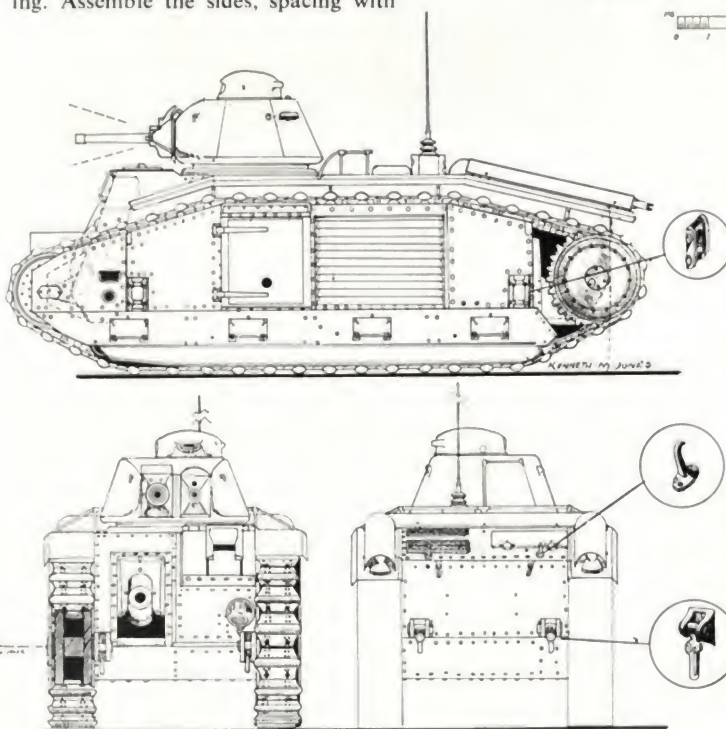
advised to use either of the two commercial products stated.

I painted my tank dark earth and green with white markings. Bellona Warpics have some useful photographs of Char Bs, mainly 'knocked-out' vehicles from the campaign in France during 1940. They give various names and markings used on the Char Bs at that time, and are well worth obtaining for detailing, etc.

Drawings are full-size for model. Compare sketch and picture (by Warpics) with heading view which shows completed model. (Photo by Cam Anderson)



Scale feet 0 1 2 3 4 5 6 7 8 9 10

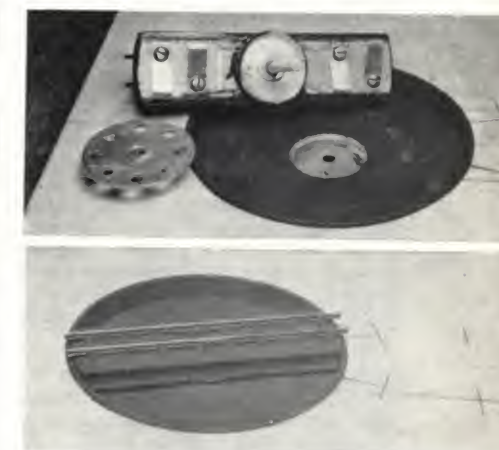


Pen friends wanted

WE have had requests for pen friends (or exchanges) from the following readers: Vaclav Tremel, Rumunská 2070 Milník-Cukrovar, Czechoslovakia, would like to hear from anyone wishing to exchange the Nichimo Spitfire and Claude, and Hasagawa Pete kits for the recently published book *Czech Aircraft, 1918-67*, by V. Nemecek, which has over 200 pictures and drawings. Please write to Mr Tremel in the first instance. Miroslav Kalab, Prostějov, Vrchlického No 7, Czechoslovakia, who is 45, would like to hear from any British aircraft modeller wishing to exchange Airfix kits for East European kits and aviation magazines. Tomek Tesar, Trida Miru 14, Olomouc, Czechoslovakia, who is 37, would also like to exchange East European kits and aviation magazines for British kits. Miroslav Kvapil, Pankrac 11, blok 4, c. 1545, Praha 4, Czechoslovakia, would like to hear from anyone in Britain interested in railway and aircraft models. He can correspond in either German or English. K. Olszowska, Kestovice, W. Plebicytowa 42b, Poland, would like to hear from anyone in Britain willing to exchange Airfix Magazine for Polish and Czech modelling or aviation magazines. Petr Vik, Praha Bubeneč, Lotyšská 2/250, Czechoslovakia, would like to hear from anyone willing to exchange Airfix Magazine monthly for the twice monthly Czech magazine *Flying + Astronauts*. Jerzy Godek, ul Wojska Polskiego 64 m.9, Lodz 11, Poland, would like to hear from anyone in Britain who is interested in cars and car models. Peter Celoud, Nový Lesík 1, Praha 6, Czechoslovakia, would like to hear from anyone wishing to exchange British/US aircraft kits for East European kits and aviation magazines. Julian S. Thomas, 13 Park Drive, Shelley, Nr Huddersfield, who is 14, would like to hear from anyone (boy or girl), anywhere, interested in motor racing and cars and willing to exchange

kits and information. Alistair Brown (16) wishes to hear from anyone his age, preferably in Japan, interested in aircraft and 1:72 scale models. He would also like any information on August Ealer and his aircraft designs. John Sutton (14), 124 Hawthorne Road, Strood, Kent, would like to hear from anyone interested in wargames, especially British colonial. M. W. Hutchinson (14), 32 Smithy Lane, Lytham St Annes, Lancs, would like a German pen friend interested in tanks and aircraft. L. C. G. Rogers (14), 161 Green Road, Moseley, Birmingham 13, would like a British pen friend interested in wargames and conducting postal wargames. Brian Chamberlain, 176 Chichester Road, Dagenham, Essex, would like a boy or girl pen friend from anywhere in the world, interested in all types of models. N. C. Baker (13), 19 Gable Court, 8 Lawrie Park Ave, London SE26, would like a pen friend interested in Airfix 00 size figures and military vehicles and wishing to exchange kits. He can write in French or German. Timothy Marks, 284 Ilam Road, Fendalton, Christchurch 5, New Zealand, would like to hear from anyone in the 13-16 age group in USSR, Poland, and Czechoslovakia, willing to exchange aviation magazines and books. M. C. Pieterse, Huisense Str, 187/III, Arnhem, Holland, would like any pen friend interested in modelling. S. Benfield (14), 41 Pasteur Gardens, Edmonton, London N18, would like a German pen friend of his own age interested in 1914-18 models. Miroslav Karnik, Lotyšská 250/2, Praha 6, Czechoslovakia, has several Czech aircraft books plus old copies of *Model Airplane News*, for exchange. Details of titles and contents on request to him. Finally, John W. Caler, of JWC Corp, 7506 Clybourn, Sun Valley, California, 91352, USA, asks if anyone has any relevant pictures, manuals, or even spare parts, to assist in restoring his Me 109G to airworthy condition. Loan or donation of such items would be appreciated.

Interested readers are asked to contact any of the above direct.



Pressure of space last month forced us to hold over pictures of the narrow gauge turntable model featured in Norman Simmons' 'Basic Railway Modelling' article. These two views show the component parts (top) and the completed turntable in place on the baseboard.

SUPERB kit of the new liner *Queen Elizabeth 2* made its first 'public' appearance on December 10 last when Airfix Products Ltd opened a suite of attractively laid out trade showrooms at the main Airfix factory. Now released, this 1:600 scale addition to the Airfix range of ship models will be illustrated and described in our next issue. It costs 12s 11d.

NEW BOOKS

REVIEWED FOR MODELLERS

Fighting ships

JANE'S FIGHTING SHIPS, 1914. Facsimile reprint. Published by David & Charles (Publishers) Ltd, South Devon House, Railway Station, Newton Abbot, Devon. Price £6 6s until January 1, 1969, then £8 8s.

UNDOUBTEDLY 'book of the year' for warship enthusiasts, this superbly produced volume is an exact reprint, page for page, of the most famous of all 'Janes', for the year when the navies lined up, so to speak, for the first world war. As such, this 1914 edition has always been in great demand by ship modellers, warship enthusiasts, and historians, and second-hand copies have been difficult to get and cost a small fortune when actually procured. All praise then to David & Charles for making this fascinating 'catalogue' of the peak of the Dreadnought age available to all at a remarkably modest price for its size and the wealth of information presented. In fact, it costs less than the current edition of 'Janes', and there is a worthwhile saving for anyone who purchases before the New Year. Quite apart from ships illustrated, listed, and detailed nation by nation, there are, of course, silhouettes of all the classes, a drawing for each principal class, and masses of extra information not found in later editions. Among these are included funnel bands (where appropriate) and other recognition devices, principal liners of the major nations, charts of all the principal naval ports, naval rank badges, data on naval guns, signals, and a detailed multi-language glossary of naval terms. There is a section on marine engines, 110 pages of fascinating 1914 adverts, and about 500 pages of warship data. The quality (and quantity) offered is splendid.

Merchant ships

SPOTTING MERCHANT SHIPS. Published by the Ship Recognition Corps, 67 New Dover Road, Canterbury, Kent. Price 6d, plus 4d postage (or SAE).

THIS handy and interesting little booklet for the pocket has 12 pages of notes and drawings and covers all the features to look for when identifying merchant ships. Drawings show all characteristics of the different types of funnels, masts, fittings, hull shapes and so on. Examples are included of the different appearances of various types (all drawn to the same scale) and all relevant nautical terms are explained. Finally, there is a guide to the standard code method of identifying and reporting merchant ships. At its extremely modest price this book is well worth having if you are interested in ships or ship models, and a good introductory buy for anyone who wants to know more about modern shipping.

Luftwaffe bombers

GERMAN AIR FORCE BOMBERS OF WORLD WAR 2. Vol 1, by Alfred Price. Published by Hylton Lacy, Roughwood Croft, Nighthales Lane, Chalfont St Giles, Bucks. Price 30s.

HERE is an excellent book for the model maker. Published by a new company, it covers a subject in the specialised world of aviation publishing which has still not previously been exhausted. Four aircraft are dealt with in Volume 1, the Dornier Do 17, Heinkel He 111, Junkers Ju 88 and Focke Wulf Fw 200 Condor. Each is described by stories given to the author by the pilots who flew them. The result is that each aircraft comes alive instead of being a mass of historical data and dimensions with which we have been accustomed in other books of this nature. The historical facts are there but presented in a way that makes very good reading. We found that after reading one story we could not put the book down until the whole lot had been read from cover to cover. Add to this a number of first-rate colour

scale drawings by artist Michael Roffe and you have a book which is highly suitable for the modeller plus an above average collection of stories all excellently told. However, we feel that drawings should have been included of the Heinkel He 111B instead of two illustrations of different 'H' models and that something of a similar nature could have been done of the Dornier Do 17E instead of the 'Z'.

A volume on British bombers has already been published by the same company but this was not submitted for review. A second volume dealing with the Heinkel He 177, Junkers Ju 188, Dornier 217 and Arado 234 will be published eventually. Our review copy was supplied by BMW Models, 329 Haydens Road, London SW19, who hold stocks. Postage is 2s.

Luftwaffe fighters

GERMAN AIR FORCE FIGHTERS OF WORLD WAR 2 by Martin C. Windrow. Published by Hylton Lacy, Chalfont St Giles, Bucks. Price 30s.

UNIFORM with the Luftwaffe bomber book described above, this very readable and informative volume deals with the Messerschmitts of 1937-45, namely the 109, 110, 210, 410, 163, and 262. There is a highly detailed text covering development and operations with each type, specifications, masses of large (and mostly rare) pictures, and numerous colour plates giving four view drawings and colour schemes of each type. Additionally, there is a page of unit markings in colour. Aimed right at modellers and aircraft enthusiasts, it is very well produced and makes a concise and useful history of the Messerschmitt breed. In fact, we found this book better than the Luftwaffe bomber book, and the colour drawings are well reproduced with quite accurate renderings of shades. In the bomber book the colours are not so well done. Our review copy was loaned by Jones Bros, 56 Turnham Green Terrace, London W4, who have stocks. Postage is 2s extra.

Old Contemptibles

THE BRITISH ARMY OF 1914, by Major R. M. Money Barnes. Published by Seeley Service & Co Ltd, London WC2, and available from Ken Trotman (Arms Books), 18 Manwell Road, Swanage, Dorset. Price 50s plus 4s 6d postage.

THIS is the latest in the well-known 'Imperial Services Library' series and is an excellently documented volume, well illustrated, which deals in great detail with the regiments, 'order of battle', uniforms, equipment, and operations of the British army in 1914, at the start of the first world war. This was a relatively small, 'elite' force, the Kaiser's so-called 'contemptible little army', which bore the brunt of the BEF's fighting in Europe until the volunteers, and later the conscripts, came forward to swell the ranks in the later years of the fighting. The first half of the book sets the scene, and also includes descriptions of all the European armies involved in the first world war. The second half of the book is a detailed regiment by regiment account of the British army in 1914, complete with badges, battle honours, traditions, and full-dress uniform details. There are eight full page colour plates showing uniform details of British and European regiments, and another eight plates in black and white only. In addition there are 21 pictures of equipment, plus drawings of all the regimental badges, so the coverage is quite extensive and will be invaluable to modellers working on the Airfix 1914 figures. Like others in the Seeley Service series, this is a most useful reference book.

For spotters

WORLD'S AIRLINER REGISTRATIONS, by Gordon Swanborough. Published by Ian Allan Ltd, Terminal House, Shepperton, Middx. Price 6s.

FOR the modest sum of six shillings, Gordon Swanborough and his publishers have been able to supply a long needed textbook for the aviation enthusiast. Thirty-three airliner types are listed, from the BAC 1-11 to the Viscount including such rare types as the Nord 260. Constructor's number, registration or service serial, owner/operator, model, delivery date and other relevant but brief facts are given under each heading in an easy

Continued on page 236

AIRFIX magazine



Charming addition to the model railway lineside scene is this Fowler traction engine (converted from the now-discontinued Lesney model) with a logging trailer from Airfix parts. The conversion by Chris Ellis referred to in text was for the military version of the engine.

Steam traction

TRACTORS AND TRAILERS BY MICHAEL ANDRESS

THIS month, not a horse-drawn vehicle, but again a period piece, and very appropriate for those of us who are fascinated by steam power; a traction engine and two alternative trailers.

The Engine: This is a modified Lesney Showman's engine; a very nice product which is unfortunately no longer made. You may be lucky and still find one in a small shop somewhere or you may already possess one; if not, don't be discouraged as I hope sometime in the future to write an article on scratch building a traction engine model. For the alterations I followed an article by Chris Ellis which appeared in the September, 1966, issue of *Miniature Auto*.*

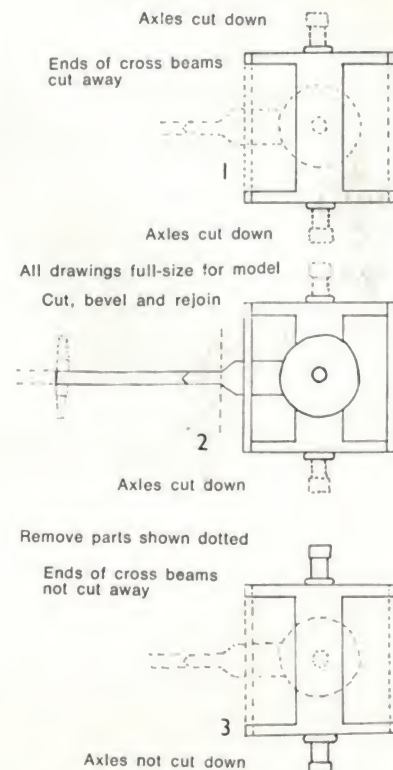
This involved removing the canopy, the generator and its support, and the gantry at the back using a razor saw (the casting is of a soft metal alloy and cuts easily). The fat part of the chimney is removed as a slice and the cap is cemented back in position. I added steering chain (fine brass chain), column and wheel (an Airfix Matador steering wheel and column), and some artificial coal cemented on to the top of the bunker. A floor of plastic card and a repaint complete the model. The driver is a man from the Airfix American Civil War Artillery set.

The Container Trailer: I refer to one who believes that containers are a modern idea to the April, 1963, issue of *Vintage Commercial* which shows a picture of a traction engine pulling two trailers, one of them a flat trailer (in fact an ex-horse trailer) with a container on it owned by a furnishing firm. The date was probably about

1920. As a matter of interest the other trailer was an ex-horse pantechnicon of the type I modelled last month.

Construction is straightforward. The container is a standard Peco item made up as in the kit instructions. The platform of the vehicle is a rectangle of 60 thou thick plastic card 59 mm long and 27 mm wide. Both the front and rear axle assemblies are made from Airfix Wagon Train front axle parts. For the rear axle, cut the Wagon Train part down as shown in Fig 1. Cement a 1½ mm square strip of plastic card 20 mm long above the spring on each side, and then fix the whole assembly to the undersurface of the tray so that the rear axle is 15 mm from the rear edge of the tray.

For the front axle assembly, cut the Wagon Train part down as shown in Fig 2. Cut a square of 60 thou thick plastic card about 10 mm by 10 mm and drill a 2½ mm diameter hole through its centre. This will take the peg of the front wheel assembly. Cement this square to the undersurface of the platform so that the front axle will be 10 mm behind the front edge. At this stage fix the wheels to the ends of the rear axle and to the ends of the, as yet, separate front axle. The wheels are Slater's wagon wheels 3 ft (12 mm) diameter for the front and 3 ft 4 inch (13 mm) diameter for the rear, and they should be painted



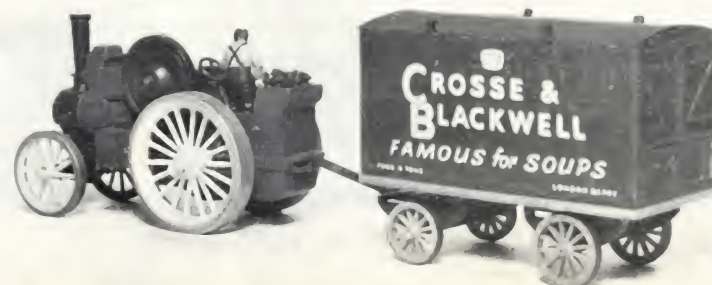
before fixing in place.

Now fit the front wheel assembly in place with the peg fitting into the hole you have made for it and check the vehicle on a flat surface to see that the front and rear are level. The front will probably be too high; cut the height of the peg down until the level position is reached. The towing bar is cut as shown in the drawing and—after bevelling the cut end—cemented together again so that the front end is at the right height for the towing hook of the traction engine. The colour scheme I used is wheels (except tyres) and edges of platform—red, the remainder—black.

The Logging Wagon: This type of vehicle is a very typical trailer for a traction engine; often two or more of these were strung out behind the one engine and this would make an impressive model for your layout, especially suitable for a timber yard

Continued on page 209

Flat container trailer is another good model for a freight yard.



* This should be available from MAP Ltd, 13-35 Bridge Street, Hemel Hempstead, Herts, at 2s 6d plus postage. We cannot supply from AIRFIX magazine offices—EDITOR.

January, 1969



Above: The Panther OP conversion ready for painting, with added side skirts. At rear is another hull with lower edge modified to Panther D shape, as mentioned in text. Left: The OP model after painting.

Panther models

IN order to provide military modellers with as many conversions as possible, it has always been my practice never to repeat earlier models, even though a lot of requests for these come along from new readers. I dealt with the Jagd Panther in the January, 1964, issue, just five years ago, but I'm breaking my usual rule this month and repeating it again, partly because it's the most requested conversion of all and partly because our circulation has trebled in five years and a lot of readers will never have seen the earlier article in any case. The final justification comes with the appearance of a very good 'Lancer' conversion part for a Jagd Panther which enables anyone who can afford it (and obtain it) to build a very accurate replica very quickly indeed.

As mentioned in this month's 'New Kits and Models', the conversion part is only available (as we go to press) from Jerry's Hobbies in USA, though stockists in Britain may have it soon with luck. It costs more than the basic Airfix Panther kit, but the price is worth the fidelity of finish obtainable, in my view. For those who can't get, or can't afford this luxury, however, there is nothing to stop the model being made with plastic card in the normal way, face by face, using the drawings provided. The other very useful reference item to have by you is the excellent 1:76 scale drawing in Bellona Prints, issue No 8, which really puts everything at your fingertips.

Start this conversion by building up the complete Panther chassis from the kit following the Airfix instructions. Before adding the hull top, however, modify it as shown in the drawings and construction pictures by cutting away the entire front end as far back as the driver's hatches. This does not have to be too precise, but the front corners must be left intact.

Then take the Lancer hull top and cut away the new superstructure section from the moulding as outlined in the instruction leaflet supplied with the outfit. The cut line is clearly moulded and the plastic card component is easily cut and trimmed with scissors. Anyone making his own superstructure from plastic sheet should, instead, cut out each face, referring to the Bellona drawing or my sketches at this point. With the new superstructure ready, it is simply cemented to the Airfix Panther hull top. In the case of a 'scratch' plastic card superstructure, cement the sides, front, rear, and top in place in that order.

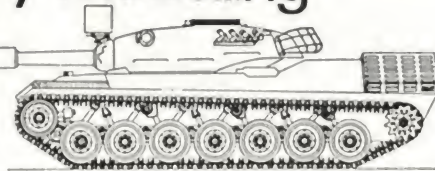
The Lancer part has the gun aperture ready moulded, but you need a cast mantlet and this is very easily provided from an Airfix StuG III mantlet which you'll have available after any StuG III conversion from the basic kit. (If you've never done

Below, left: The completed Jagd Panther conversion. Numerals are from Almarks sheets and small crosses from Micro Decals. Right: Model just prior to painting. Note added tools and equipment.



Military Modelling

by
Chris
Ellis



any, 'cannibalise' the part and put the rest of the StuG III aside for conversion later.) Simply cut off the front 9 mm of the StuG III cast mantlet and cement it rigid to the moulded Jagd Panther gun aperture. Anyone building the superstructure from scratch will need to make the heavy cast aperture plate from plastic putty and add other detail—like the machine gun mount—from scrap. If you are doing this, I suggest you make an early production Jagd Panther which had a much less prominent aperture plate which could be depicted by thick strips of plastic card. The Feist Publication on the Panther has particularly good pictures of this, and references (and a picture) appear in the Bellona booklet.

For the gun I found that the complete barrel left from a JS3 kit previously converted to a JSU was ideal. It is exactly the right length (if the locating peg is included) and needs only the muzzle filing down to match the pattern of the Jagd Panther's '88'. If you don't have a spare JS3 gun, there are other alternatives, eg, the Tiger gun, or the barrel from the Airfix Flak 36 suitably cut down and fitted with the muzzle brake off the Panther gun. A collar is required round the inner end of the barrel (though early Jagd Panthers didn't have it) and this is easily made by wrapping round a few turns of Sellotape cut 10 mm wide. Then the gun is cemented in place and left to set.

The long cylindrical container from the kit is added to the left side of the hull in the usual place, the exhaust pipes are fitted, and all that remains is the detailing. Roof fittings include the sighting quadrant, two hatches, a ventilator, and two episcopes on the right side. I cut one of these from the discarded Panther turret roof and made another from scrap to match. All else is cut from card or plastic card. The round hatches are very easy to make if you have (or can borrow) an office punch with varying diameters. The Bellona drawing shows all these details very precisely and I've indicated them on my sketch as well. There is a door, a fire extinguisher and a small hatch, for throwing out empty cartridge cases, in the superstructure rear. Finally, you can add a jack, crowbar, starting handle, and tow plates on the racks moulded on the lower hull sides. As a final option there are the side skirts as drawn, but these can quite happily be omitted if desired.

After painting—sand with green or dark earth mottle was common—a tow rope can be added from thick thread and the model is finished.

The second model this month, a Panther OP vehicle, has not appeared in these pages before. It is very simple, and ideal for beginners. Basically make up the complete chassis, hull, and suspension following the kit instructions. Before cementing the hull top in place, however, file off the machine gun mount since the Panther Ausf D (on which this vehicle was based) did not have this feature. If you do this carefully, you are left with a vertical slot into which the kit machine gun may be cemented. This slot was like a vertical letter box flap with a cover closed from inside. If desired, a piece of card cemented behind the slot (with the removable machine gun then omitted) will depict the



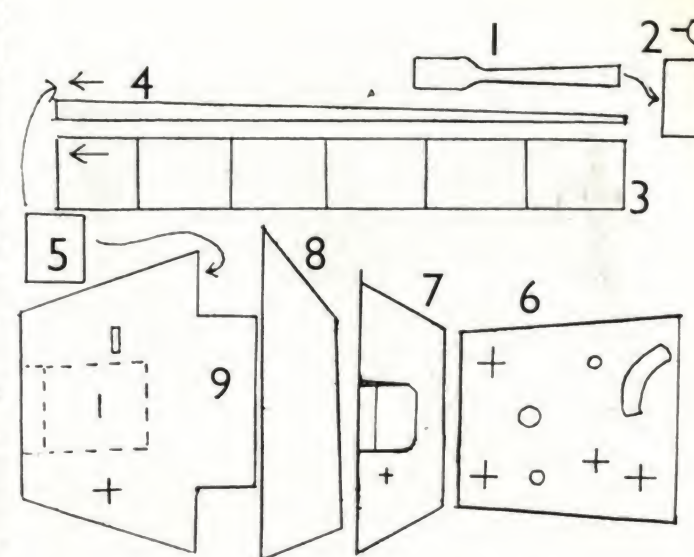
Above: First stage in the Jagd Panther conversion. The hull front cut away and the Lancer superstructure being cut from its base with scissors. Right: Full-size drawings show (1) Panther OP dummy gun; (2) top view of OP turret front; (3) side skirts; (4) stringer for skirts (arrows show front); (5) front mudguard; (6) Jagd Panther hull top (widest edge forward); (7) superstructure rear; (8) superstructure side; (9) superstructure front.

vehicle with the slot closed. Also remove the round episcopes from the front hull top, which again was not featured in the Panther D.

Now take the turret and cut a new front plate to fit across the front exactly—easily done by drawing round the turret front with a piece of card held in place. The mantlet from the kit is cut down to 10 mm wide with the gun collar central, and the gun collar is cut off flush with the mantlet. Cut new semi-circular mantlet sides, and cement the modified mantlet, off-centre to the left, to the turret front. To its right goes a ball-mount for a machine gun, which I cut from the end of a piece of scrap spruce. A vertical vision slot cover is cemented to the right of this.

Next make a dummy gun barrel—the Panther OP had only a false gun leaving the turret free for map tables and radio installation. I used the inner end of a spare Centurion barrel, from the fume extractor inwards, for the dummy gun. You could use wood dowel or any other scrap, however, with the Centurion gun as a pattern for working. The barrel needs tapering (with a file) towards the fume extractor, and the extractor itself must be filed to give a 'waist' where it joins the barrel. The complete assembly is cemented then to the mantlet. Complete the turret with a 6 mm diameter paper disc cemented on the rear to depict the escape hatch (off-centre to the right) found on all Panthers. Then add smoke projectors from scrap on the front upper corners of the turret sides.

For this model you must add side skirts to disguise the hull shape at the lower edges, which depicts the later Model G. Use a strip of plastic card for the stringer to which these were attached, cement it parallel to the ground, and cut the skirts from plastic card, either individually or as a strip with individual plates scribed



in. Finally, add other small details as for the Jagd Panther.

For newcomers who've not seen previous Panther conversion articles, it is worth stating that the kit as purchased depicts a Panther Ausf G, the final production variant. However, to be accurate, you must file off the driver's vision flap moulded on the hull front. Then add the turret escape hatch as just described for the OP variant. To make a Panther Ausf A, the second production model, leave the driver's vision flap as moulded and add side skirts to disguise the fact that your model has a Panther G hull shape. For a Panther D, remove the machine gun mount and modify the slot as described for the OP, add the side skirts once more, plus the turret escape hatch. To make a Panther D or A without side skirts you need to modify the lower edges of the hull overhang by sawing them off parallel to the ground. Narrow triangular shaped stowage boxes, with vertical outer faces, are then necessary under the rear of the hull overhang. I showed how this was done in my Bergepanther conversion article, December, 1965. It is not a difficult modification, but I do not commend it to beginners; far better (and quicker) to be satisfied with side skirts.

Steam traction — from page 207

or goods yard. Construction is again easy using Airfix parts and some pieces of plastic card. The front axle assembly is a Civil War field gun carriage but with the wheels replaced by front wheels (16 mm diameter) from an Airfix Wagon Train kit. The notched parts above the axle are cut down slightly (remove about 1 mm) and a piece of 60 thou thick plastic card 7 mm square is cemented on top.

The rear axle assembly is another Wagon Train front axle assembly, this time cut down as in Fig 3 and with two strips of 1 mm wide $\times \frac{1}{2}$ mm thick plastic card glued, one across the front ends of the springs and the other across the rear ends. The rear wheels are from the Civil War Artillery set (19 mm diameter).

The main longitudinal beam is a strip of 60 thou plastic card 64 mm long and 4 mm wide. This is cemented to the front and rear wheel assemblies so that its front end is flush with the

front end of the square of plastic card mentioned above and with its rear end flush with the rear surface of the strip across the rear ends of the rear springs. Before the glue sets firmly make any adjustment necessary at the joint between the main beam and the front wheel assembly so that the front

Below: View of the logging wagon showing Civil War gun carriage as front bogie. Bottom: Underside view of the container trailer showing front and rear bogies in place.



end of the towing bar will be at the correct height for the traction engine. The two cross bearers are identical; each is a 20 mm long $\times 3\frac{1}{2}$ mm high strip of 60 thou plastic card with a 6 mm long $\times 2$ mm wide strip of 15 thou plastic card fixed upright at each end. My method of assembly does not allow the front wheel assembly to swivel, but this doesn't worry me as this is a scenic, not a working, model; it could easily be arranged to swivel if you wished, by pushing a pin up through the carriage.

I painted the whole trailer in a dull matt green. The 'log' is a length cut from a branch I picked up and is 8 cm long and 2 cm in diameter. Take care in selecting a suitable piece (fairly straight, without branches) as an unsuitable one will spoil the effect. When in place on the trailer it should look sufficiently massive. The log is held down by two lengths of black thread.

Part I: Introduction

THOUGH Germany had been forbidden to build tanks under the Versailles Treaty, design studies were carried out in secret and various tanks were built and tested during the period 1926-1933. But it was not until the National Socialist Party came to power in 1933 that tank design and production was properly started.

Among the orders given by Wa Pruf 6 (the War Ministry department responsible for AFVs) for a new series of tank development was one for a tank in the 15 ton weight class. Three prototypes were built by the firms of Henschel, MAN and Daimler-Benz and these were tested at Kummersdorf and Ulm Proving Ground from late 1936 to the end of 1937, with the result that the Daimler-Benz vehicle was chosen for a production order.

To maintain secrecy, code terms were used to hide the fact that tanks were being built, and it was not until after the use of German tanks in the Spanish Civil War that they became publicly known as Panzerkampfwagens. What later became known as the Panzerkampfwagen III originally had the code name of ZW (*Zugfuhrerwagen* or 'Troop Commander's Vehicle'). Daimler-Benz built ten initial production vehicles in 1937 under the designation I/ZW Ausf A. There followed a period of continuous development of the basic vehicle up to 1943, a total of twelve different models being produced, with output totalling 15,644 vehicles.

The first five marks of the PzKpfw III were really prototypes of the Pz III series, each having a different type of suspension which was standardised when the torsion bar system was adapted for the Model E in 1941 and retained for all future models in the Panzer III series. By Spring, 1941, a satisfactory standard of mechanical reliability had been achieved and the most suitable basic design had been developed. From this time on the introduction of new models was the direct result of the ever-changing tactical requirements concerning the fire-power and armour protection. It is, therefore, only in the structure of the armour, the fighting arrangements and, to a lesser extent, the suspension, that the differences between the later models are to be found.

Many of the components of the Pz III, eg, hatches, visors, ports, hull MG mounting frames, cupolas, engine, etc, were interchangeable with the Panzer IV. This was due to the high degree of rationalisation and standardisation achieved by the German armaments industry. To facilitate rapid and simple assembly, both the Pz III and Pz IV were divided up into four pre-fabricated sub-assemblies which were complete structural units, the hull, rear superstructure, front superstructure, and turret.

By January, 1943, the Pz III had become obsolete as a fighting tank due to the necessity for a high velocity 7.5 cm

Below: Pre-fabrication allowed the Pz III to be turned out quickly in huge numbers. Here hull assemblies are being lifted from the jig in which bolt holes were cut with a multi-spindle drill. Note chassis numbers chalked on nose.



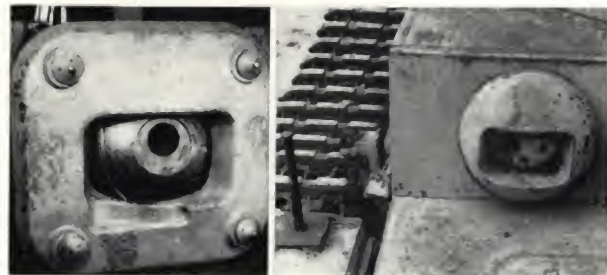
PANZER 3

by
Peter
Chamberlain



tank gun such as the 7.5 cm KwK 40 which was then being installed in the Pz IV. This gun could not be mounted in the Pz III on account of its smaller turret ring diameter of 152 cm. The Pz IV had a turret ring diameter of 168 cm. Existing Pz III models were from then on converted into *Sicherheitspanzer* (close-support tanks) with the short 7.5 cm KwK L/24 gun or other special purpose vehicles.

Early models (A, B, C, and D) mounted the 3.7 cm KwK (which had the same ammunition and ballistic characteristics as the 3.7 cm Pak) with two coaxial 7.92 mm MG 34 in the turret, and one MG 34 in a gimbal mount on the offside of the front vertical plate. In the Models E to early J, the main armament was increased to 5 cm in calibre (5 cm KwK L/42) with only one coaxial MG 34, while in later Models J to M, a longer 5 cm gun (5 cm KwK 39 L/60) was mounted. This



Above: Panzer III fittings. Hull machine gun on Models B to H was fitted in the Kugelblende 30 gimbal mount with external armoured frame (left). In models J to M the Kugelblende 50 replaced it (right). This had 50 mm thick armour.

gun had the chamber lengthened to take the 5 cm Pak 38 cartridge. The final change in the Pz III main armament came with the Model N, which mounted the short low velocity 7.5 cm KwK L/24 which had previously been carried by the early types of Panzerkampfwagen IV.

The Panzerkampfwagen III was the German 'cruiser tank' (by British definition) and from 1941 to 1943 formed the main equipment of panzer regiments. In 1939, however, there were only 72 Pz III in an armoured division, which then had a total of 416 tanks. In these early days they were allocated as one platoon of five per light company plus one Pz III commander's model at company HQ. At that time there were only enough Pz III available to stiffen up the firepower of the Panzers I and II which then formed the main German tank strength. After the re-organisation of winter 1940-41, the light companies of panzer divisions were completely equipped with the PzKpfw III except for a recon troop of PzKpfw II. This meant there were now 106 PzKpfw III out of a total of 201 tanks in a German armoured division and

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this remained so until 1943. In a further re-organisation in 1943, the PzKpfw III was dropped from the German armoured division, becoming obsolete with the appearance of the Tiger and Panther.

By this time the Pz IV had become the main equipment of the panzer divisions, strengthened by the Panthers and Tigers. Pz III did, however, remain in service to the end of the war in second line roles and for special purposes like OP functions.

The vehicle described

The tank was divided from front to rear into three separate compartments. At the front was the driver's compartment, with the driver situated on the left-hand side with the steering levers and foot controls immediately in front of him. The gearbox (above which was the instrument board) and the gear lever were on the driver's right, and a parking brake on his left. The steering mechanism was either hydraulically or mechanically operated and of the epicyclic clutch brake type. The driver had a vision port protected by a laminated glass block and an outer armoured visor. When the visor was closed the driver slid an episcopes into position, two holes being drilled through the front superstructure plate above the visor for this purpose. There was another port behind the driver's left shoulder fitted with a removable glass block.

The wireless operator sat next to the driver on the right-hand side of the tank. He had a hull MG in a ball mounting which was controlled by a head rest attached to the mounting. The browpad and telescope eye-piece were all fixed on the same mounting so that as the wireless operator moved



Above: Panzer III fittings. Early type cupola (left) on Models E and F had five vision ports closed by shutters, and projecting bolt heads. Later type (right) on Models G to M lacked the bolts, was squatter and thicker (50/95 mm armour).

his head to direct the MG, his eye was always in the centre of the gun sight. The wireless equipment was normally situated to the left of the operator, over the gearbox. There was a revolver port by his right shoulder inset into the right-hand side of the superstructure. Neither the driver nor wireless operator had access hatches in the top of the superstructure. Hinged escape hatches were, however, fitted on both sides of the hull in later Pz III models.

The fighting compartment, surmounted by the turret, was in the centre. On the Pz III there was no floor to the turret, although seats for the commander and gunner were suspended from the turret wall. The loader stood on the right-hand side of the gun and had no seat so therefore had to walk around with the turret as it traversed. He had a vision port protected by a glass block and an armoured flap on the right-hand side of the gun mantlet and another in the turret door on the side of the turret.

The gunner sat forward on the left-hand side of the gun. The 5 cm gun was fired electrically by means of a trigger on the turret traverse handwheel, and the coaxial MG was fired mechanically by a foot-operated trigger. A vision port, similar to the loader's, was provided on the left-hand side of the gun mantlet and a revolver port was included on the left



Above: Most powerfully armed Panzer III was the Model (Ausf) L with long 50 mm gun and spaced armour (missing from the mantlet here). Heading picture shows a Model G with short 50 mm gun.

side of the turret.

The commander sat in the middle at the rear of the turret, directly behind the main armament. His cupola was integral with the turret, and five ports fitted with bullet-proof glass blocks and sliding steel shutters provided all-round vision. The cupola hatch consisted of two hinged flaps. An auxiliary turret-traversing handle on the loader's side allowed dual control for quick traversing, as no power traverse was provided on the Panzer III.

The engine compartment was at the rear and separated from the fighting compartment by a bulkhead. The engine was mounted in the centre with a petrol tank and battery box on either side. To the rear of the engine were situated the two radiators lying across the tank. A cardan shaft ran to the front of the tank under the false floor of the fighting compartment, to the gearbox and steering mechanism situated in the driver's compartment.

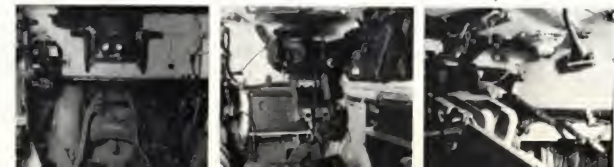
The normal target and turret position indicating devices were provided for the commander and gunner respectively, and a gyroscopic compass was fitted for the driver.

The standard German tank wireless equipment was fitted, known as Fu 5, and consisting of a 10 watt transmitter, an ultra short-wave receiver, and accessories. This Fu 5 equipment was found in all Panzerkampfwagens II, III, IV, Panther and Tiger tanks, and was an easy equipment to operate. In the Pz III, as already stated, the receiver was mounted to the left of the operator over the gearbox, and the transmitter was fitted in front of him under the glacis plate.

On the Panzer III, the aerial was mounted at the right rear corner of the fighting compartment. The aerial, a copper tube 2 metres long, was mounted in an armoured cylinder bolted to the hull. Mechanism contained within the cylinder consisting of a coil spring kept the aerial in a vertical position and allowed it to deflect when striking obstacles. The stowage bin at the rear of the turret had wooden strips fitted to insulate it from the aerial if contact was made when the turret was traversed. The aerial could be locked fully dipped by a hand lever and in this position was held in a wooden trough on the right-hand track guard.

The wireless set was used in conjunction with an intercom telephone providing the tank commander, wireless operator and driver with internal and external voice communication facilities. The same microphones and telephone receiver headsets were used for the intercom as for the ordinary wireless. Additionally, in the Pz III Model L, a voice tube was fitted for communication between the commander and gunner.

Below, from left: Inside the Panzer III; driver's steering levers, hull gunner's position, 50 mm breech and voice tube (All photos, Imperial War Museum).





The modified Biggin Hill footplate seen fitted on the Triang-Hornby 'BB' class chassis. Note the plastic card 'collar' (in white) which holds the slide bars, detached from the Triang moulding

Motorising 'Biggin Hill'

REGULAR readers of this series will remember the long line of conversion articles based principally on the Airfix *City of Truro* kit. I had by no means exhausted the possibilities of this kit but there seems little point in continuing the series when the kit is no longer being manufactured! By now there is only a remote chance that an odd one or two samples remain undiscovered on a retailer's shelf in some out of the way part of the country. From my own experience I am convinced that any prospective purchasers will have a tough time finding any. If, however, there are any readers with their own private stocks of this one-time popular kit and there is sufficient interest, I am quite prepared to return to some more conversion possibilities; such locomotives as the 'Armstrongs' or the 'Badminton' for example.

Meanwhile, railway enthusiasts will have been delighted by the recent re-introduction of two former Kitmaster kits; the 'Battle of Britain' and the 'Schools' class locomotives. I have been examining the possibilities of the 'Battle of Britain' and it would appear that there is more to the kit than just an accurate outline static plastic model.

First thoughts always with Airfix locomotive kits invariably concern their motorisation possibilities. This is no less true of the 'Battle of Britain'. Coming immediately to mind is, of course, the K's tender power drive unit. The *Biggin Hill* tender has such a large 'body' that it should be a simple matter to fit the K's chassis in place and include sufficient ballast weight to give the complete locomotive and tender a performance in keeping with the full sized prototype. The

26 mm x 26 mm wheelbase unit should be specified for the *Biggin Hill* kit. Another possibility is, of course, the Simplas chassis conversion kit by Wilro Models Ltd. The price of the



BY NORMAN SIMMONS

Below, from top: The Triang 'BB' chassis as modified with plastic card 'collar'. The Airfix 'BB' chassis with rear end built up as in Fig 5(a). Another view of the Triang chassis showing the Airfix footplate adapted for fitting.



kit is 26s 11d, to which must be added the cost of the motor, gears and coupled wheels. Perhaps we may examine both of these motorisation possibilities in later articles, though so far we've been unable to find any ready source of supply for all the items needed to motorise an Airfix kit the Simplas way.

From a quick examination of the motorisation possibilities using readily available proprietary items it would appear impossible to complete a motorised Airfix 'Battle of Britain'

model for less than £3. For not much more than another 30s one can purchase the complete ready-to-run Triang-Hornby 'Battle of Britain' locomotive *Winston Churchill* and at this price it might be thought hardly worth the bother to construct one's own. It must be admitted that the Triang-Hornby 'Battle of Britain' is a very handsome model. The locomotive body is particularly well detailed and apart from the excessively high buffers, is very accurate in its dimensions. It is also possible, of course, to purchase the Triang-Hornby *Winston Churchill* locomotive chassis without bodies but here again, the combined cost of a Triang-Hornby chassis and the Airfix kit is not going to show a great economic saving over the complete Triang-Hornby locomotive. At the time of writing, the Triang *Winston Churchill* costs 92s and about 15s less for the chassis only. The big model shops which stock Triang-Hornby trains can usually supply the separate chassis.

It seems, therefore, that one valuable use of the Airfix *Biggin Hill* is as an alternative body for the complete Triang-Hornby locomotive. From the operating point of view this has a lot of attractions. Anyone who remembers the steam days on British Railways, especially if they were number spotters who visited any of the larger locomotive depots and works, will remember that the steam locomotive used to spend a good deal of its time out of use. For every locomotive active on the road it appeared that there was at least one on shed and many of these were stone dead with nothing but cold water in their boilers. The boilers needed washing out, tubes, smokeboxes and fireboxes had to be

AIRFIX magazine

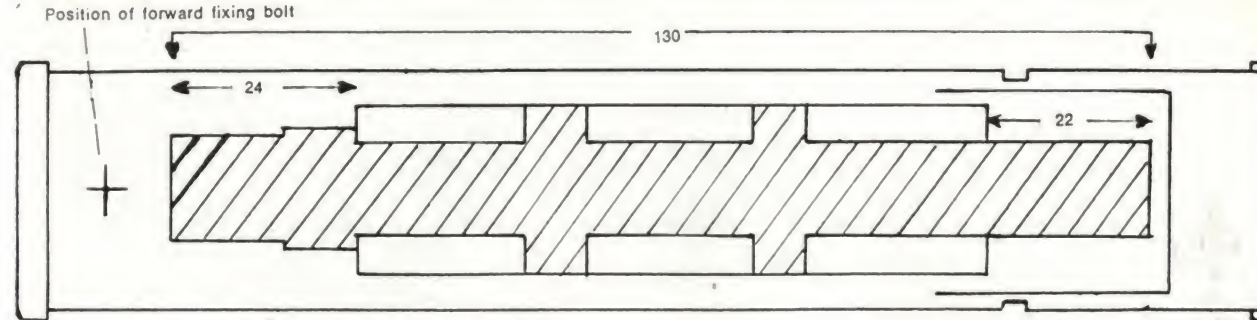


Fig 1: Plan view of Airfix 'Battle of Britain' footplate—remove shaded area

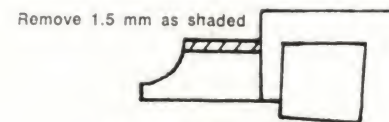


Fig 3: Front end of Triang 'BB' chassis

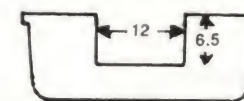


Fig 2: Base of cab front

All drawings full-size for model

Dimensions in millimetres

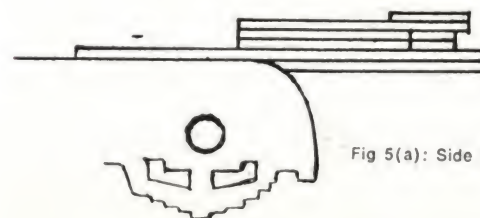


Fig 5(a): Side view

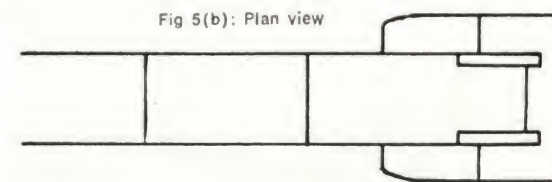


Fig 5(b): Plan view

Rear end mounting on Airfix chassis

cleaned and examined, the motion, valves and piston rods had to be taken down and overhauled and there were always repairs to be seen to. If it was decided to use a particular dead locomotive on the shed it might take hours to get it ready. Dead locomotives had no power of their own and they needed other locomotives in steam to move them about the shed.

In comparison with all this the electrically propelled model steam locomotive is completely unrealistic. It is invariably in use at every operating session and it starts to move the moment the track is energised by the controller. How much more realistic would it be if we had two 'Battle of Britain' locomotives, each taking a turn of duty hauling its appointed load or having a spell of rest and regular maintenance. Operating the model railway this way would be rather like taking on the duties of shed master; recording locomotive mileages and making sure they come in at regular intervals for maintenance and overhaul. We can do this quite cheaply using one Triang-Hornby 'Battle of Britain' which will be 34051 *Winston Churchill* and (with Airfix body) 34057 *Biggin Hill*. As I hope to show, either one of these locomotives can be put in steam simply by switching over the

January, 1969

Winston Churchill chassis only. These notes still apply when it comes to fitting the Airfix *Biggin Hill* body (and the Airfix tender). Just ignore the instructions for switching bodies.

Fig 1 shows the amendments that have to be made to the Airfix footplate to enable it to fit over the Triang-Hornby chassis. A Junior Eclipse hacksaw blade was found most useful for cutting out the large area in the centre. I have an old broken blade in my tool kit which on plastic I find I am able to use without the aid of a handle. It is an advantage to have one end of the blade broken since this removes the small pin projection which normally anchors the blade in the hacksaw frame. The blade can then be inserted through narrow openings. On the relatively soft plastic in the sizes we encounter in most Airfix kits the blade is strong enough to support itself without the frame. Check clearances and make sure the footplate fits over the chassis perfectly. It is as well to compare my illustrations with your own model. My Triang model was obtained many years ago, soon after it was introduced, and there may have been some changes since, although I must say I am not aware of any.

It will be seen that the Triang-Hornby body is fixed to the chassis by a screw at the front end and a pair of

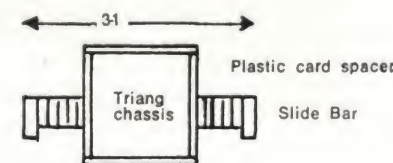


Fig 4: Cross-section showing slide bars mounted on plastic card spacing blocks and plastic card 'collar' around Triang chassis

more than the price of one. For those who obtain the Triang-Hornby lugs cast on to the rear end of the chassis frame which fit into two small square shaped holes in the base of the firebox. The Airfix body can be made to fix in a similar way. At the rear end, however, instead of the two square holes in the base of the firebox it will be found satisfactory if the base of the cab front (Airfix part 13 in 'Stage 2 Body and Bogie Assembly' of the Instruction Sheet) is cut as shown at Fig 2. After making this cut, check that the part is a perfect fit over the rear end of the chassis and that the base will slot into the groove below the lugs. It is essential that there should not be any side play. Cement the amended part 13 to the footplate and leave to dry thoroughly overnight. It is necessary to file 1.5 mm off the tops of the Triang-Hornby

Continued on page 226

THE recent introduction of the Airfix 'Hi-Speed' slot-racing car range, with its 1:32 scale Formula and Sports/Prototype vehicles, offers considerable scope for some simple conversions and minor detail modification. The parallel range of static models can easily be altered in similar fashion, and one car ripe for conversion which springs instantly to mind is the Ferrari 250LM.

The LM was developed in 1964 from the immediately preceding, rear-engined 'P' or 'prototype' sports car



The Airfix 250LM Ferrari in either static kit or slot-racing form lends itself to simple 'beheading' to make any of the open variants with similar bodywork. This particular conversion makes the 330P of Maranello Concessionaires in 1964. Slot-racing version is shown (alongside an unaltered model), but in the static version you can, of course, include cockpit detail.

Forge a Ferrari

SLOT OR STATIC 330P MADE BY DOUG NYE

series. A change in International regulations caused Ferrari engineers to produce a closed car that year, and they did this quite simply by putting a roof on the 250P open model. By removing the roof—and a few other odds and ends—from the Airfix LM, therefore, we can easily produce a model of the handsome Ferrari prototypes, winners at Le Mans in 1963 and the Tourist Trophy in '64. The resultant open car can, by detail amendments and different colour schemes, then be used to depict any of the 'P' series of Ferrari open cars, ranging from the 250P, through the 330P to the 365P model. These numbers in Ferrari nomenclature, incidentally, denote the capacity in cubic centimetres of one cylinder of the engine. Thus, using their classic V12 engine, the overall capacity of each of these vehicles is 3 litres, 4 litres and 4.4 litres respectively. But to continue with the conversion...

This conversion work is concerned wholly with the body of the slot-racing model, or the shell of the static version. On the slot-racer, first snap the motor-cum-rear axle assembly out of its mounts, then unscrew the two retaining screws and remove the front axle, leaving the body stripped and ready to work on. The roof pan has got to be removed, together with most of the blank side pieces at the rear of the cockpit. A rough guide for these modifications is given in the picture to the right, but the first cut (I used a Junior hack-saw for the purpose) is simple enough. You follow the deep panel line moulded into the body at the forward end of the engine cover. As you saw through this, ensure that

the window transparency is pushed hard up against the lower lip of the windscreen cut-out at the front. This saw cut removes the tail from this transparency, and if it should slide back you won't have enough 'glass' left for the side windows of the open car.

Saw through the roof and side members right down to the joint with the main body shell, taking care not to scuff the filler caps or doors with the



Top: Aerial view shows how filler caps are moved forward to front wings and treatment for rear decking. Above: Key picture mentioned in text shows the basic 'butchery' involved.

saw as it gets down there. Now, the level of the small portion of roof behind the cockpit is too high, so a horizontal saw cut, 10 mm up from the filler caps, removes it complete. It only remains to saw through the remaining four slender roof pillars, again, about 10 mm above the waistline, taking care not to scuff the windows transparency, and the roof may be removed and dispensed with.

Behind the cockpit on the full-size 'P' series cars was an aerofoil bar, and this is formed from the remaining section of side walls behind and on either side of, the cockpit. Where the air intakes are formed in the rear wings on the Airfix model, there is a moulding crease at the forward end of the actual orifice, and a line is drawn from this point, up the side panel, to another point marked on the top edge of the panel stump, 8 mm back from the leading edge of the lopped roof pillar, now standing free just before it. Everything standing above the level of the rear deck aft of this line must now be removed. I used the hack-saw to make the vertical incision, and then carefully peeled away the plastic behind it with a crescent-bladed X-Acto knife, right down to deck level. This leaves a rectangular hole largely occupied by the fawn moulding of the interior decking, with two V-shaped holes extending aft. Dependent upon how accurately this is cut away, the precise size of the necessary flat plastic card filling will vary, so measure this carefully and cut the thinnest available plastic sheeting and glue this in place to fill the gaps neatly and give a perfectly smooth expanse on the tail of the car.

To complete the aerofoil, now, a piece of 1 mm plastic card—or, indeed, ordinary card will do—is cut. 25 mm long at its trailing edge, 26 mm at the leading edge and just on 8 mm wide. This is glued in place on the cleaned-up stumps standing behind the cockpit, so will now be held aloft

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HEINKEL 111-1940 STYLE



by Alan W. Hall

THE version of the Heinkel He 111 made by Airfix is the H-20. As this was not used until the later part of World War 2, the time is ripe for a conversion of this model to the earlier variant used during the Battle of Britain. Incidentally, this also answers requests we've had from several readers.

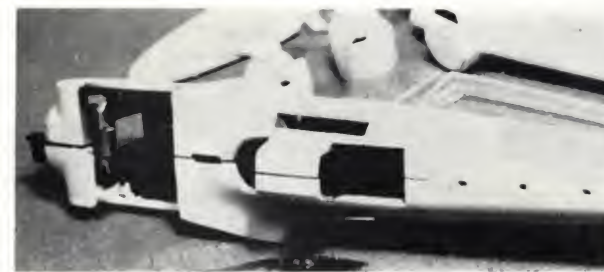
It is a relatively simple job to convert the model from one mark to the other and this should be of special interest to beginners to the art of kit converting, as well as those whose interests centre on Luftwaffe aircraft.

The main changes include modifications to the ventral gondola, replacing the turret on the top of the fuselage with a manually operated gun and also making slight modifications to the engines. The work also involves making your own transparencies from acetate sheet and can therefore be regarded as a good introduction to this art for the beginner.

Reference on the Heinkel He 111 H-4 is easy to find. Profile No 15 gives a large number of drawings, camouflage details and historical notes on the version, and *Flying Review International* had a colour feature in its December, 1967, issue which again is of great use. In the latter, countries other than Germany using the Heinkel He 111 are also covered. Further line drawings which will be of interest if the model maker wishes to take this conversion to further stages can be found in *Famous Bombers of the Second World War* by William Green, and the recently issued *Bomber and Reconnaissance Aircraft*, Volume 9, by the same author.

Aircraft transfer manufacturers have been kind to modelers working on Luftwaffe aircraft. I found several very useful unit transfers readily available. The best are manufactured by Micro Decals of Culver City, California, which sell for \$1.50 and are now available in the UK from Modeltoys of Portsmouth. Another company who produce the required transfers are Nordan, who supply a sheet with no less than five sets of unit markings for Heinkel He 111s, including 5/KG 26, the unit I required for my own model.

The conversion has been described in easy stages in the hope that the beginner will be able to master these before attempting more difficult subjects.



STAGE 1 The cockpit interior detail, fuselage windows and tail wheel are fitted in the early stages of construction according to the kit instructions. Before this is done, however, the forward part of the under fuselage gondola has to be cut off. The

exact distance can be seen by measuring from the plan and I removed the unwanted piece on each fuselage half before joining them.

STAGE 2 Similarly, before the two fuselage halves were joined, I cut out long rectangular holes from the under fuselage surface itself and from the sides of the gondola. To do this I used a Mini-drill, boring a large number of holes round the edge of a pencilled area so that the vast bulk of the unwanted plastic was removed. The shape was then achieved by careful filing. The actual



This view shows the alterations to the gondola (Stage 2) and the canopy moulds and formers (Stage 4).

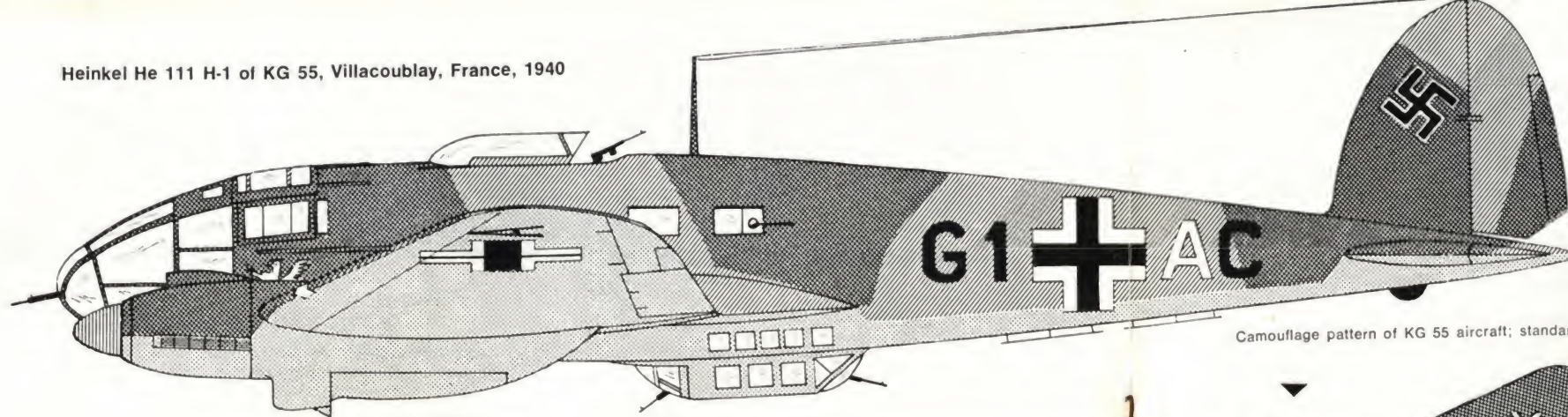
transparent areas came from the stem of the stand supplied with the kit. Here the clear plastic is thick enough to be put in place and then shaped by wet and dry paper to the fuselage contour. Sufficient time must be allowed after the clear plastic has been stuck so that it may dry sufficiently before the sanding operation takes place. To return the shine to the clear plastic surface I used Duraglit metal polish.

STAGE 3 The two fuselage halves are now stuck together after the interior has been painted and left to dry. During this time work can proceed on putting the wing halves together, adding the engines and undercarriage and preparing the tail unit. I also glued together the parts of the nose transparency at this stage so that it could be set aside to dry thoroughly before being fitted later. Work with the file and sandpaper is very necessary on the engines. I found that the joints of these needed attention and had to be rubbed down together with the propeller hubs before these were stuck in place.

STAGE 4 The moulded transparencies for both the upper and lower gun positions are now made. Small balsa blocks were cut and shaped to fit the required size and covered with a mixture of talcum powder and clear dope before being sanded down ready for use. Female moulds were cut from 1/4 inch sheet Obecchi and a thick piece of acetate sheet held over the female mould by large paper clips. This combination was then heated in the grill part of my kitchen cooker until flexible and the male part of the mould forced through the female, leaving the resultant transparency ready for trimming out.

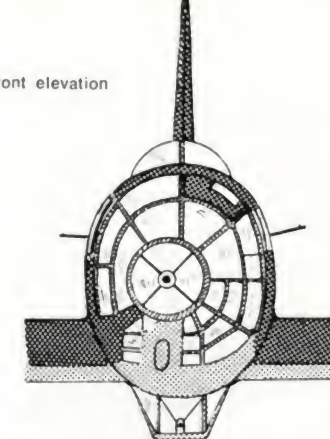
Continued on page 218
Scale drawings on next page

Heinkel He 111 H-1 of KG 55, Villacoublay, France, 1940



Camouflage pattern of KG 55 aircraft; standard European scheme

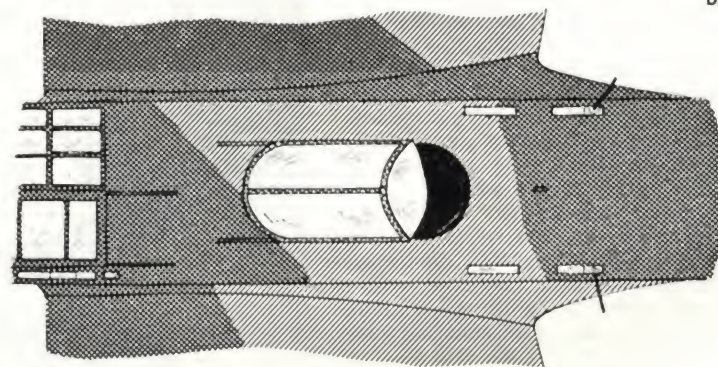
Front elevation



Emblem of KG 55
(Red)

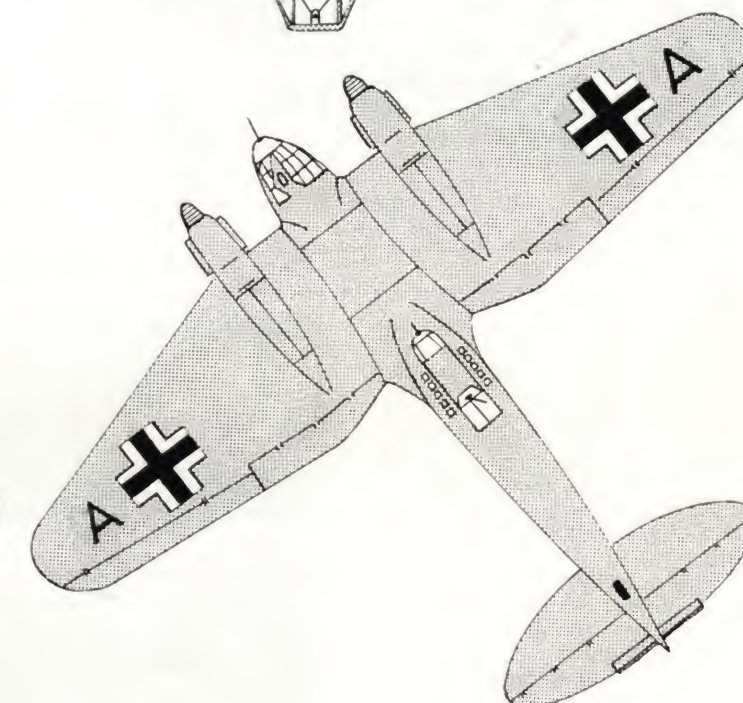
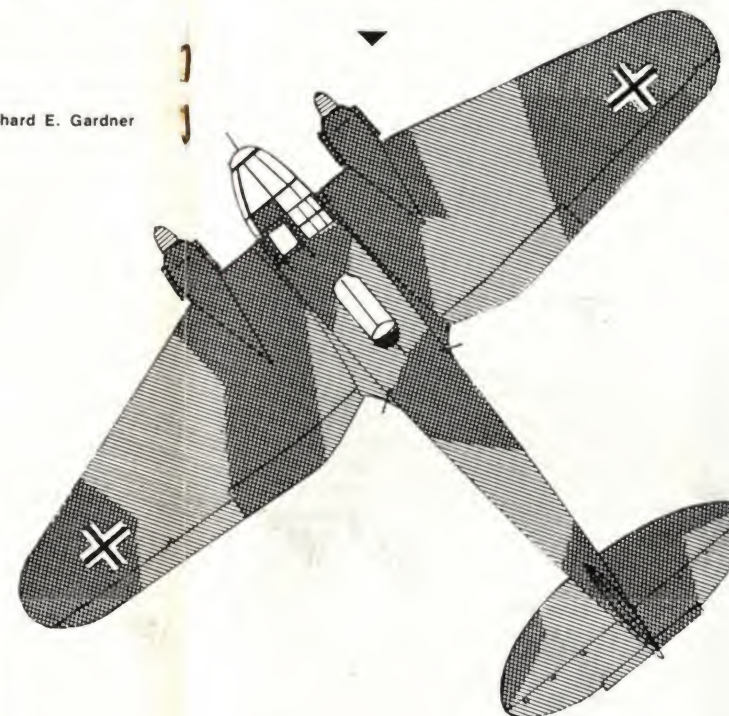
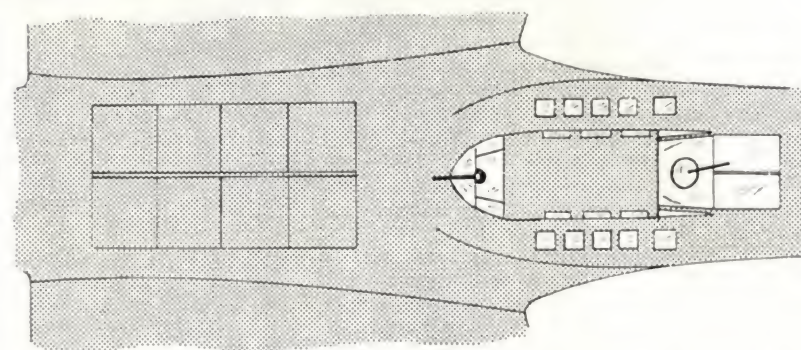
Drawings by Richard E. Gardner

Top surface, midship section



Emblem of KG 100

Under surface, midship section



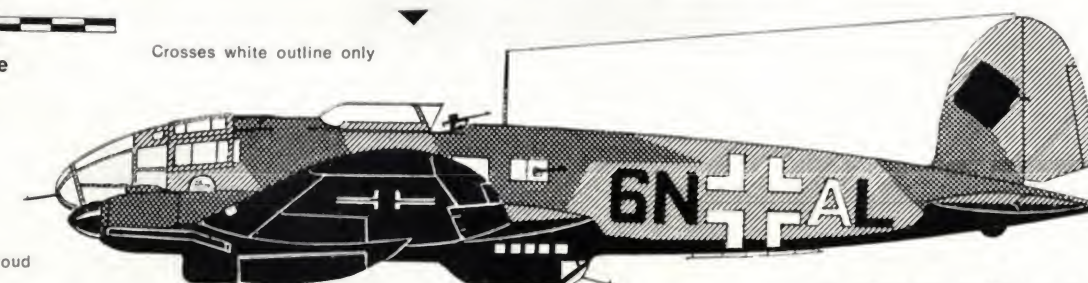
0 Feet 10



1:72 Scale

Heinkel He 111 H-1 of KG 100, Vannes, 1940

Yellow 'A'



Note exhaust shroud

Note over-painted swastika on this aircraft



Black-Green
70



Dark Green
71



Light Blue
(Helblau)
65



Black



Pale Green

All colours matt

PAINTING AND CAMOUFLAGE

It is easier to paint the complicated lines on the nose before cementing it on the model. The Humbrol Authentic camouflage set No 2 was used to provide exactly the right colours for the model and I produced the splinter camouflage pattern by laying the Dunkelgrün 71 first in roughly the right areas and then by using Sellotape masking out that which was not required and painting the rest with Schwarzgrün 70. This provided the sharp lines necessary to go with the splinter camouflage scheme favoured by the Luftwaffe during the war. On the aircraft I built, which was from 5/KG 26 based in Sicily on anti-shipping operations in August, 1941, I found that the mottled colours of the fuselage sides were more easily applied by using my air-brush. This operation could, however, have been done by using a large sable brush with the hairs cut short and the colour allowed to thicken.

Alan Hall's model finished as an aircraft of KG 26, in the Mediterranean theatre. Cowlings, fin, and tail band are white. Otherwise the colour shades match those in the drawings.



AIRFIX magazine

STAGE 5 The lower transparency is stuck in place, any small cracks are filled with body putty or plastic wood and when dry the whole area is finally sanded smooth and in the case of the transparencies given a good rub with Duraglit to impart that final polish which makes the perfect model. The upper transparency is not put in place until after the area immediately under it is painted.



Above: Basic assembly as described in Stage 3. New exhaust manifolds are yet to be added. Fill all gaps with body putty and smooth down at this stage. Note gondola side windows made from the display stand.



Above: Main transparencies are added after the model is painted. Interior is medium grey. Painting notes are on page 217. Individual window frames in gondolas are depicted by careful painting over the transparency.

STAGE 6 The engine exhausts are different on the model we are making from those supplied in the kit. I made mine by cutting a thin strip of Obechi to the required width and length and then cutting the dog-tooth serrations on one side. I found the wood to be very brittle, however, and I suggest using scrap plastic and filing out the serrated edge.

STAGE 7 Two other small details needed are runners for the upper gun position transparency and an aerial under the rear fuselage. The latter is supplied in the kit but this is very thick and chunky and looks better replaced. I made both items by heat stretching plastic sprue until the required thickness was reached. The items are then cut with a sharp knife and stuck in position.

Forge a Ferrari — from page 214

by the remaining rear roof pillars and the side panel pieces, a saw-cut dividing the two. This saw cut must now be filled with body putty or Polyfilla, as must any gaps around the replacement top deck panel or ends of the aerofoil plane. Sand these down, and they are then ready for painting.

Only two jobs now remain, one the modification of the windows transparency, the other the relocation of the filler caps. Because of the flat-topped form of the LM model's window moulding it is difficult to accurately reproduce the 'P's screen, but for this simple conversion, I just did the best I could. Measure 20 mm from the forward foot of the windscreen and make a mark. Next, from front corner to the opposite front corner of the moulding's flat top, make a saw cut going down to a point about 10 mm up from the bottom of the side windows. Then turn the saw horizontal and with extreme care saw back in to that initial cut from the mark on the windscreen. This cut will first remove the front section of the roof pan in the transparency, then continue it rearwards until the rest of the roof pan is removed. The side windows must now be shaped, peeling away at them with an X-Acto knife until they are both 8 mm tall at the rear, curving sharply up in the top front corner to meet the approximately 2 mm greater height of the windscreen.

The filler caps are sprung out of their mountings on the rear wings and must be brought forward to positions just ahead of the doors on the front



Two useful views which show detail differences. **Top:** A 330P at Le Mans in 1964 with the 'eyebrow' intakes moved from the bonnet panel to just ahead of the windscreen—easily done on the model by filing off the mouldings and making new intakes from scrap. **Above:** Surtees in the original 250P prototype, of 1963 which had the fuel caps in the rear wings as in the basic Airfix model.

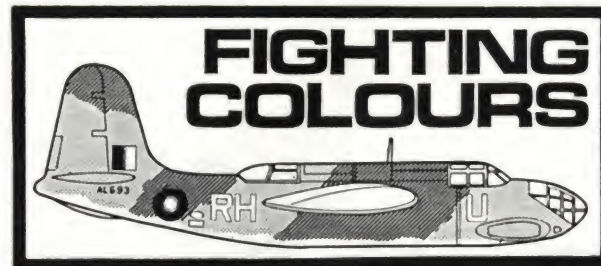
wings. Run a suitable drill up inside the wing moulding on the body shell until it beds about 3 mm ahead of the forward door panel line and then drill through. Repeat on the other side, fit small platforms of thin plastic card inside the wing and remount the fillers on them. The empty filler cut-outs on

the rear wings are now filled and sanded down to the correct profile and painting may commence.

To complete this quickie conversion, I painted my 'P' as the 330P model run by the British Maranello Concessionaires Ferrari team in 1964. This is a beautiful colour scheme, pale blue striping on the blood-red panelling as shown in the photograph. For convenience I retained the Airfix stick-on numbers, and the ugly marks where the windscreen was sawn through are easily covered by a strip of paint. Adhesive tape was often applied to this area of the screen to cut down glare from the sun, so makes this a perfectly legitimate ploy. A dab of yellow on the rectangular nose badge and that, basically, is that. Quite a lot of further detail could be added to produce a dead accurate replica, but this is quite good enough for the beginner to try his hand at. It's straightforward, and the result is well worth the attempt at forging a Ferrari!

WINTER SHOW

NOW well established seasonal show of great interest to modellers is the 38th MODEL ENGINEER EXHIBITION at the Seymour Hall, London W1 (nearest Underground: Edgware Road), from December 31, 1968, until January 11, 1969, open daily (except Sunday) from 10 am to 9 pm. On the first day opening time is 2.30 pm and on the last day it closes at 7.30 pm. Sponsored by MAP Ltd, the exhibition features railway, steam and tram models, plus numerous other attractions including a display of vintage Dinky Toys, Historex soldiers, plastic models by IPMS members, and many trade stands. Admission: Adults 4s, school children 2s 6d.



Part 14: The post-war years

DELIVERY of the Spitfire XXI commenced in September, 1944, but it was March, 1945, before No 91 Squadron then at Manston became the first to equip with this type. No 1 Sqn received a few the same month but never became operational with them before the war ended, whereas from April 10, No 91 Sqn used them for reconnaissance and anti-ship/submarine patrols. By the end of the war over 150 sorties had been flown by aircraft including DL-V:LA224 and DL-Y:LA223. These aircraft were marked in the standard specified fashion with Ocean Grey-Dark Green-Sea Grey Medium paintwork with Sky trim and yellow wing leading-edge bands. Two Mk XXIs used experimentally at Rotol for propeller research in late August, 1945, were LA214 and LA 216. Both had a very glossy finish and underwing serials, features in evidence on new aircraft at the 1945 White Waltham display for the stand-down of the Air Transport Auxiliary.

The Tempest II was now in service, first with No 183 Sqn, eg, MW747 and soon with No 13 OTU, eg, MW749. By September, 1945, No 247 Sqn was equipping with them. Squadron examples in standard camouflage and white trim included MW755:HF-W, MW759:HF-M of No 54 Sqn, MW768:ZY-Q and MW769:ZY-W of 247 Sqn and MW777:SL-U of No 13 OTU.

Ocean Grey-Dark Green-Sea Grey Medium camouflage



Top: Hornet 1 PX237 wearing light grey/blue finish and Type B roundels. Black under-wing serials without roundels there. It bears possible traces of Type C1 fuselage roundel. Photographed in 1946. **Above:** Hornet EB-W:PX277 in grey/blue finish has silver spinners and Type D roundels. There are no under-wing roundels. This is an interesting picture showing very early application of Type D roundels—September, 1947.



Top to bottom: Mosquito T3, RR307, in silver finish with 'T' bands (usual on these aircraft) in use with No 141 Squadron whose white crest appears on a black fin disc. Line-up of 85 Squadron Mosquito 36s with black and red fuselage checks and squadron crests on their fins. Vampire F5, VT864, of 601 Sqn landing at Farnborough at the 1950 RAF Display. Under-wing serials (only), red 601 motif on nose and 'B' on nosewheel door.

with Sky spinner and rear fuselage band, yellow outer wing leading-edge stripe, black serials, Type C1 fuselage roundels, and Type C wing roundels came to be the standard trim in the immediate post-war fighter force with relatively few exceptions. These included the white noses of the Mustangs (wing bands were removed after the war) and Tempest special markings, also removed in due course. Typical markings were to be seen on the Spitfire XXIs of No 91 Sqn at Duxford on March 29, 1946. LA221 (DL forward on the port side, aft on the starboard) coded DL-L was standard in all respects and had a very glossy finish. Night-fighters retained the late war colours with red codes evidenced by Mosquitoes ZK-L:MT487 and NT282:YX-D. A Hornet seen in March, 1946, was PX273 with P M C L B (sic) painted in one foot white letters aft of the Type B fuselage roundels which were repeated above the wings and red/blue fin flash. It wore the light grey/PR blue finish, and was a Sector Leader's aircraft.

The first post-war fighter colour scheme was promulgated on April 16, 1946. It stated that fighters would return to the silver finish of long ago—either natural metal or glossy 'silver' (more strictly aluminium) paint work, with black codes and serials. It was many months before this became common and may roughly be said to have come into general use when the Meteor 4 joined Fighter Command. On July 23, 1946, for example, Spitfires of 165 Sqn at Duxford still had the post-war grey-green glossy finish, etc, and included SK-E:MK673 and SK-T:MJ482, both with 'pointed' tails and clipped wings, and SK-R:PT958, a Mk IXe with 'pointed' tail and standard wings.

At the 1946 SBAC Show there was at least some evidence of the newly ordered scheme, if only on the silver prototype 'Attacker' TS409 and Vampire TG285. Hornet PX313 appeared in the light grey/PR blue scheme highly polished, and the Welkin night-fighter Mk II had light grey/yellow trim with prototype marking and Type C wing roundels. Pro-

Continued on next page

Fighting Colours — continued

duction Welkins mainly appeared in the same trim as the Hornets, but when it was envisaged that these aircraft might serve as high-altitude night-fighters for use in 1944, some were painted in the usual night-fighter camouflage of grey and green. These included DX286 and DX289 of the FIU with red ZQ coding. DX328 wore the scheme when in the hands of RAE in February, 1945.

For the 1946 Battle of Britain Display I took myself to Marham, seeing the unusual Meteor III ZQ-J:EE348, with standard camouflage. Sky codes, yellow wing leading edge stripes and all but matt finish. This machine had A.I radar in a special nose. More conventional were the grey-green Mustang III UZ-P:FB370 with white nose, Meteor III 4D-S:EE459, and Tempest V:RE-M:SN262 from CFE with RP racks. All had codes in the prescribed positions.

In Germany some BAFO squadrons were flying Mosquito VIs with small but interesting variations in markings. HR369 had 'EG' aft in dark blue with 'H' forward. Its finish was the customary grey and green of wartime Mk VIs and night-fighters. Spinners were medium grey, and upper wing roundels of Type C1. No under-wing roundels were carried. PZ953, coded SY-U, had its letters similarly placed and had red spinners, whereas OM-C had blue codes and spinners, these dark blues being roundel blue. Similar variations from usual colouring continued for some years.

Although post-war colouring for fighters at Home and Overseas was again confirmed by Official order as silver for day-fighters and grey and green for night-fighters in May, 1947, the wartime colours continued in use for months to come. Post-war camouflage was glossy but it would be erroneous to imagine fighters as shiny in finish as those in the camouflage of recent years. On May 16 the order was given to revert to a variation of Type A roundels on wings and fuselage and to the pre-war type of tail stripe, this time red foremost and painted on the fin. Proportions of the roundels were, however, different, the red centre disc having the same diameter as the width of the blue and white of the roundels. A change was also made to bright shades of red and blue for roundels, but again these were features that



Top: Mosquito B35 VP192:HS-F of 109 Sqn in grey/black finish at Celle in 1951, not strictly within the scope of a series on fighters, but a good example of its period nonetheless. **Above:** Tempest TT5, EJ758:B used as a target tug at Sylt in 1951. It is silver with yellow and black target tug stripes and yellow fuselage band (Pictures by A. Jones).



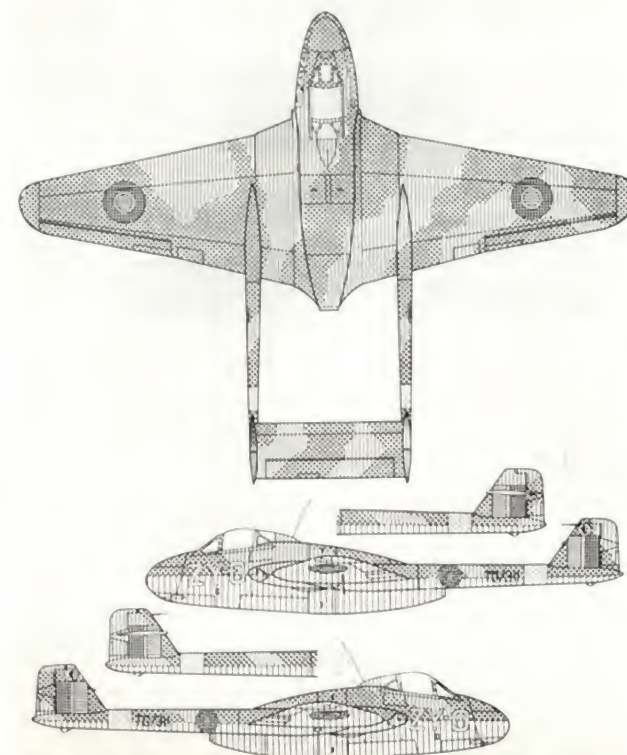
Top: The colourful period; Meteor 8s of 74 Sqn with black and yellow squadron markings, not applied to nearest machine. From the front the aircraft are F:WA838, S:WA824, N:VZ557, Z:VZ544. S and N also have a tiger motif on the nacelles. All are in high gloss silver finish, 1951. **Above:** Back into camouflage; Sabres of 112 Sqn with their traditional sharks' teeth decor and white codes on fin. (MoD photos).

took many months to become a general sight in a very cost conscious post-war atmosphere. The new roundels were designated Type D.

An assortment of fighters seen in December, 1947, gives evidence that the changes were taking long to introduce. Tempest II PR682:EG-A had usual camouflage although the blueish tint in the Ocean Grey had long since weathered away. It had a red spinner. Sky codes and band and yellow leading edge stripes. EG-S had a dark blue spinner and under the cowl 'T' appeared in black on a small white disc. Nosewheel doors of fighters in recent years have commonly carried such a feature, but it was in use on some squadrons long before the jets came in any number. Tempest V W2-T:EJ896 of No 80 Sqn was painted in usual camouflage, whereas J5-F:NV989, unlike the others, had Type C1 upper wing roundels and a white spinner. Its wing tanks were bright green, for already some squadrons were cautiously introducing their pre-war identity colours, albeit very unofficially. J5-S:NV721 differed from these Mk Vs in that it had no Sky fuselage band. Meteor EE277:FX-H (FX forward on both sides) had the Sky band, yellow leading edge stripes and a silver belly tank. Mosquito VY-B:RK982 had blue spinners and red codes.

Meteors largely took over the Home Defence task in 1948 backed by a fleet of Mosquito NF36s and the Spitfires of the RAuxAF—Mks 16, 21 and 22. Meteor 4s entered squadron service in a very smooth silver finish and wore Type C/C1 roundels and had black codes and serials. Frequently the aircraft's letter was painted on the nosewheel door in black or the Flight colour. Some Mk 4s were camouflaged.

Four home squadrons were equipped with Hornets and in December, 1948, many of these were in smooth silver finish and usually polished at the end of the week's flying. There was special evidence of the return of squadron colours on the Hornets. No 19 Sqn had decorated the spinners and some of the noses of its Mustang IVs in blue and white checks, and at the 1947 Church Fenton Battle of Britain Display the grey and blue Hornet IIs on show all had rich blue spinners with a narrow white line painted around them. Black coded, the aircraft included QV-D:PX248 and QV-E:PX278. PX226:QV-A differed in that it had two white lines and was flown by the squadron commander. By December, 1948, the squadron had Hornet IIIs and there was even further evidence of special squadron colours. PX347:QV-D,



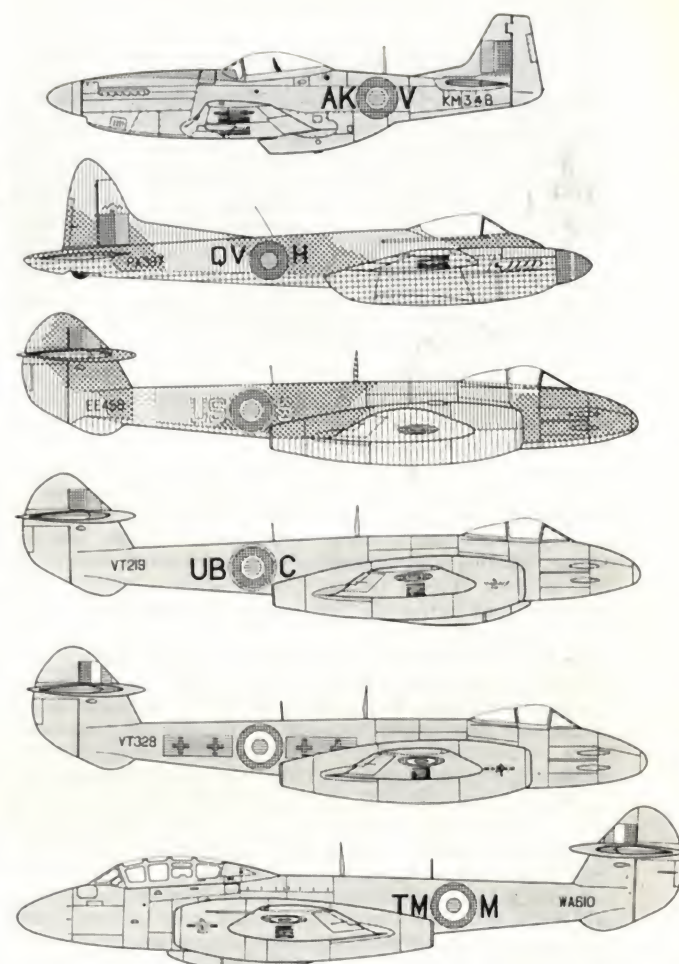
Above: A Vampire F1 of No 247 Sqn, based at Odiham in 1946. The first Vampire (production aircraft) flew in the summer of 1945 from the English Electric factory at Preston. TG311:ZY-O is illustrated here. **Right, from top:** Mustang IV AK-V:KM348 of No 213 Squadron, used in Italy in 1946. Hornet F3, PX387:QV-H, in dark sea grey-green-blue finish as in the Autumn of 1950. Meteor IV, EE459, of 56 Sqn in dark sea grey-green-medium sea grey finish with Sky trim but no leading edge stripe. Meteor IV of 63 Sqn in high gloss finish. Squadron markings and crest on nacelles. Meteor IV of 263 Sqn with fuselage and nacelle squadron markings, 1950. Meteor T7, WA610, of 504 Sqn with nacelle crest.

all silver, had dark blue codes and blue spinners with two narrow white lines. QV-C:PX346 (grey and blue in finish) had black codes and silver spinners, whilst PX298:EB-V of No 41 Sqn, wearing grey/blue finish, had Type B roundels and red/blue fin stripe. But perhaps the most interesting of the Hornets was EB-A:PX366, a silver machine with the crest of No 41 Sqn about six inches high applied to the fin of the squadron commander's aircraft.

There was by this type some liberty available for the painting of aircraft used by high ranking officers. RW393, a Spitfire LFXVle with Type D roundels, was a glossy white overall and in April, 1949, was seen wearing red serials.

In March, 1949, a new high-gloss silver finish was approved for use on Meteors, an aluminium gloss covered by a special glazed finish which was standard on Meteors for years to come. A Mk 4 which featured it was VW283:KR-K which had a yellow nose tip and K on its nosewheel door.

One more really exciting change came—it simply had to, for the post-war air force was now a reality and not just something left over from the years of fighting. It was the introduction of colourful squadron markings, which have continued to this day. Even in the mid-war years in North Africa attempts had been made to decorate Hurricanes with a squadron flash. Indeed, 85 Sqn had worn its hexagon emblem in France in 1939. In early 1945, No 3 Squadron Tempests wore their squadron crest on their tails, and 616



0 5 10 FEET

Drawings by A. M. Alderson

RED	DARK GREEN	SILVER
WHITE	DARK GREY	SKY
BLUE	MEDIUM GREY	BLACK
YELLOW	P. R. BLUE	OLIVE GREEN

Squadron's Meteors had their rose emblem boldly placed on their tails. No 21 Squadron's Mosquitoes had various styles of squadron markings and in the late 'forties many other formations decorated their aircraft with special unit motifs. In 1948 it was decided to re-introduce squadron markings.

Initially the markings were designed to appear quite small on the nacelles or noses of Meteors, or fins of the Hornets and Mosquitoes—which they did, flanking a squadron badge. To some units this was a disappointment, and when one very famous squadron placed its pre-war chequerboard markings flanking the fuselage roundels at the suggestion of someone who had better remain nameless, it was hastily told to remove them and replace the black codes.

On April 16, 1950, Meteor VZ429:LJ-Q (LJ aft on both fuselage sides) in silver gloss finish now typified the current style with black codes. Its wings had Type C roundels and

Continued on next page

the fuselage had Type C1—despite the edict of months ago. On May 30, 1950, UB-K:VT280 and VT194:US-R could be seen similarly marked. But, the first (and only) post-war RAF Display was near—and what better time to bring a note of gaiety which had pervaded those Hendon shows?

So, the visitor to the show was presented with the delightful appearance of No 263 Squadron's Meteors wearing red rectangles flanking the fuselage Type D roundels each bearing two red crosses, VT273, VT328 (ex HE-J), VT336 and VT240 (ex HE-M). And as if this was not enough, No 601 Squadron appeared with red and black triangles flanking the boom roundels of its Vampire 3s which included VT822:C and VT793:G. The squadron's special motif appeared in red on the noses of its aircraft and the individual letter was black on red nosewheel doors. No 604 Squadron's aircraft as yet bore no colours but had large black letters on the sides of the nose as on VT829:B. A Vampire FB5 of 247 Sqn merely satisfied itself with a small replica of its black and red colours flanking a squadron crest on the nose of VZ193:G. The Meteors of Nos 66 and 92 Squadrons appeared with squadron code letters and small squadron markings flanking the nose squadron crests.

By mid-June—three weeks before the RAF Display—56 Sqn Meteor 4s were wearing red and white checks on the fuselages with black fin letters as on VT263:K; and No 63, one of the 'new' fighter squadrons, had adopted yellow and black checks seen on VT346:D. A cruel twist of fate prevented the Hornet squadrons from joining the new scene of brightness—their aircraft had been camouflaged for low attack duties! Squadron codes were retained and whereas all the other squadrons were adopting Type D roundels, the Hornets reverted to Type B, as on PX340:SH-W painted dark sea grey and dark green with PR blue under surfaces. QV-H:PX387, also camouflaged, had blue spinners with one white band and small squadron checks and crest above the fin flash.

With an expanding fighter force, many of the squadrons had no previous colours to revive, and ingenious ideas were submitted in 1948. Nos 1 and 41, for instance, vied for the styling of a red band, 41 opting for additional white and red outlining. Scottish Auxiliaries went in for some amazing plaids, whilst others sought to link their colours with past glories or events—or as a last resort based them upon the squadron badge.

Thus, the markings tide had fully completed one somewhat erratic turn—albeit abruptly halted when Hornets and then



Top: Meteor F8 WK947:W of 245 Sqn, painted with a white tail for Exercise Vigilant. **Above:** An interesting line-up of Vampire FB5s of 26 Sqn at Gutersloh in 1950. EG-M:VV479 is nearest. Finish is silver with squadron badge on nose (A. Jones photo).

Vampires began to appear in a new camouflage scheme—but that is another story.

Coming to the end of any lengthy work brings moments of regret, but I was determined this should be not so with such a story as that of fighter colours. A remedy lay close at hand and I decided that these concluding lines should be written on September 9 at the very spot where, for over three decades, I had so often watched the fighters change—from frail Siskins to mighty Lightnings, from the brightness of peace to the dull grimness of a terrible war. I took myself to Duxford and sat in the field where in 1942, R7634 had belly flopped. I remember how on an exciting day in July, 1943, I'd thrilled to a stream landing of fifty-two P-47s of the 78th FG, been excited by the first view of an Airacobra, watched that never-to-be-forgotten fly-past at the 1935 Jubilee Review, seen my first Gauntlet and thrilled to the Bulldogs of 19 Sqn sending a Virginia on an imaginary fateful ending behind the belt of trees capping that hill to the south. Gone the hangar where I'd first climbed into a Heyford via that memorable rickety little ladder—gone to satisfy a public increasingly unable to recall the exciting and horrible events of the war years, yet soon to thrill to the sight of Spitfires and Messerschmitts fighting it out once more for the film 'The Battle of Britain'.

All was now quiet—or was it? Surely that sound from the north-east could mean but one thing? Indeed—the Spitfires, like ghosts, were home once more with a victory roll or two whistling past and soon peeling away into a coughing, spluttering approach. And as they gently glided overhead, some of the most magic moments of a lifetime were but briefly renewed. But then I realised—they had white codes.

It was time to go home, to remember. The past can never be recaptured.

Michael J. F. Bowyer

THE AVRO 504K

First of two articles describing colour schemes and variants worth building

BY PAUL LEAMAN

THE Avro 504 series can be said to be a part of the very essence of the history of the early years of aviation, civil and military, of Britain and indeed of the world. The prototype which first flew in July, 1913, was originally designed as a sports machine but, like most aeroplanes of the period, it was soon submitted to the Royal Aircraft Factory for official flight performance trials.

With the outbreak of war in 1914 it, and many less suitable aeroplanes, were put into operational service with the RFC and RNAS. A 504 of No 5 Sqn, RFC, piloted by Lt V. Waterfall with Lt C. G. C. Bayly as its observer, had the dubious honour of being the first British aeroplane to fall to enemy action when it was brought down by infantry fire on August 22, 1914, over Belgium. The RFC complement of 504s with its squadrons in France never rose above thirteen machines and these in the main were employed on reconnaissance duties.

The RNAS in a manner characteristic of them in that period used their 504s in an offensive role. Amongst many notable actions, that of November 21, 1914, is probably the most outstanding. On that day three Avro 504s led by Sqn Cdr E. F. Briggs attacked the Zeppelin sheds at Friedrichshafen on Lake Constance. Four aircraft had been prepared for the raid but one broke a tail-skid and failed to take off. A second, that of Briggs, fell to ground gun fire in the target area. The other two machines returned safely after their 20 pound bombs had destroyed a local gasworks and severely damaged one Zeppelin.

However, the 504's aggressive days were limited, and though the type was on occasion converted to single-seat night-fighter roles, it was as a training aircraft that it really made its mark.

The first version to be designed with that role as its basic function was the Avro 504J. The advent of this machine, together with the ability of Maj Smith-Barry, made the name of Gosport famous throughout the world for basic flying training. Smith-Barry's contribution to the team being his ability to diagnose, explain and organise basic flying principles and practise in an era in which almost nothing theoretically conclusive was known about them. The 504J was an aircraft ideally suited for that purpose in all ways, and in this role it soldiered on well into the 1930s. At the beginning of 1918 the J gave way to the K, a move made necessary by the need to find an alternative power-plant to the Gnome Monosoupape used for the J and by then no longer in production. The K was specifically designed to accept the variety of alternative rotary engines available.

The Type K was the last variant to be converted in this country to an offensive role. As a single seater fighter it served with some six home defence units, mostly in the north. As a sidelight on this use, it was felt that after acclimatising themselves on 504s and getting the feel of a rotary engine's torque effect, new pilots would be more at home with the more powerfully engined aeroplanes that equipped the southern squadrons.

With the cessation of hostilities, and considering the vast numbers of Avro 504s built, it is little wonder that in a short time the type dominated the Civilian Register and at one time was the most common aeroplane on the British civilian scene. The aeroplanes in this category varied from simply repainted and registered J and K and earlier types, to quite complex works rebuilds, often with different engine installations and frequently other major structural alterations, such as enclosed cabins and redesigned flying surfaces.

An example of a variant achieved by engine modification was



Useful detail view of the Shuttleworth Trust's Avro 504K H2311, marked as an aircraft of No 1 School of Special Flying for instructor training at Gosport. Note the rod on the cowling and position of the generator on the centre section strut (Photo by C. J. Lawrence).

the Avro 548 which married an 80 hp Renault, a 90 hp RAF 1A, or a 120 hp ADC 8-cylinder air cooled vee-type engine to a standard 504K airframe. It must be noted here that whilst most of the 504s flying in civilian guise during the period were the subject of some rework, by or on behalf of their owners, those which were modified by A. V. Roe were made legitimate by the granting of a distinctive type number, ie, 536 and 548.

Meanwhile, the basic 504Js and Ks continued in service with the, now, Royal Air Force, both as training and as communications aircraft. In this latter role they served in the United Kingdom and at most of the RAF's aerodromes throughout the world. Many of these types were 'exported' and many featured in 'Imperial Gifts' to countries of the British Empire.

In 1922, the rotary engined version gave way to the radial engined 504N, this being the ultimate production development of the type and normally powered by the Armstrong Siddeley Lynx engine of either 160 or 180 hp. Avro 504Ns were used by the RAF as basic trainers until replaced by the Avro Tutor, an aircraft of a different and more sophisticated era but with strong lingering resemblances to the 'Old Faithful' it replaced. Needless to say, many 504Ns also found their way on to the market on the Civil Register and, of course, were exported to many countries throughout the world including, amongst others, Denmark and Japan. Thus the machine originally built speculatively in 1913 came to be still flying in the late 1930s and, in fact, some were operational with the Greek Air Force in 1940. The Avro 504 has now, of course, become a museum piece. Excellently restored examples will be seen at RAF static displays on occasion, and the more fortunate will have seen the Shuttleworth Trust machine in flight, a memory to treasure.

CONVERSIONS

It is strongly recommended that before any attempt is made to either build the basic kit or one of the following conversions, the *Aeromodeller* Plan Pack for the type be purchased. This covers the Avro 504K and N. The drawings by G. Cox originally appeared in *Aeromodeller* for October, 1956. The Harleyford book *Fighter Aircraft of 1914-1918* also provides a useful reference. A comprehensive list of reference sources appears at the end of the final instalment.

The four drawings that appear with this half of the series show basic variations on the Avro 504K. Two of them are so simple that they require a paint brush and patience only! The remaining two conversions are still fairly elementary, but with care will result in attractive models. In all cases the final appearance will be improved if the minor details which are understandably absent from a commercial kit are added. These are dealt with first and, though they can be gleaned from various parts of the drawings, do apply to all machines unless specifically stated.

Tail Skid: The Avro 504 tail skid was made of wood and was a fairly simple shape. It was pivoted towards its bottom end on a vertical tubular metal post which was itself supported by four short tubular metal struts of smaller diameter (two per side). The 'spring' in the system was given by a rubber cord which was

Continued on next page



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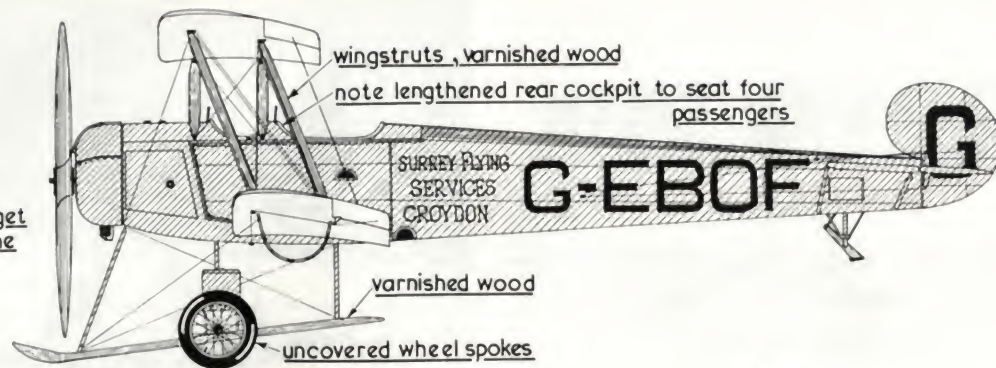
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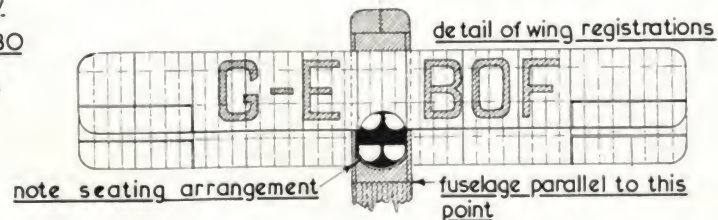
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AVRO 536
130HP Clerget
rotary engine



G-EBOF, Built by A.V. Roe Ltd 1919 operated by
Surrey Flying Services Ltd of Croydon 1919-1930
FINISH: fuselage, all tail surfaces & undercarriage
struts: royal blue. wings: silver. fuselage & tail
lettering: white. wing lettering: royal blue.



clamped to the top of the skid itself and then passed through the fuselage fabric to its anchorage inside. These details are shown in the drawings and may also be seen in various photos of the type which appear in the reference books mentioned. The tail skid supplied with the kit is a simplified version but may be made more realistic by the addition of the four support tubes and rubber cord, these being made from stretched sprue.

Petrol Pump: All 504s carried a wind driven petrol pump which was generally mounted on the front starboard centre section strut as shown in the drawing of E3273. The body, which can be cut from sprue, was usually in its natural aluminium finish and its propeller blade was in varnished mahogany. This latter may be cut from a small piece of card and cemented to the body, finally being painted tan to represent the wood.

Pitot Tubes: Most, if not all, 504s had a pitot head on their front inboard port wing strut as shown on the drawings of E4342. This can be made up from stretched sprue also. The pitot tubes were copper and should be so painted. The body can be finished in medium grey.

Wing Loops: All 504s were originally fitted with these beneath their lower wings. The function being to prevent accidental damage to the wing fabric from contact with the ground. The loops were made in ash and were fastened to the wings directly beneath the outer wing struts—again these can be fashioned in stretched sprue. They are best fixed to the wing by drilling through from the wing strut locating holes and using the resulting holes as location points. These loops can also be coloured tan.

Cowling: The cowlings of all production machines were built up from segments riveted together. The rivets will not show in 1:72 scale but the swaged joints will. The kit cowling does give a fine representation of this which for most purposes is adequate. What should be added is the tie rod which joined the two open ends of the front portion together—again, made from heat-stretched sprue.

Finally, as has been said before, aircraft of this period had laminated wooden propellers. The plastic moulded propeller provided with the kit can be painted to imitate wood but a more realistic and attractive effect is achieved using either a small strip of mahogany carved and sanded to the same shape as the moulding or a laminated block built up from strips of veneer stuck together with a PVA adhesive and then carved to shape. In this instance the same comment applies to the nose skid.

Rigging of the model is essential to achieve the true character of the original. This can be done using a stretched sprue or fine monofilament thread. The illustration on the kit package in conjunction with these drawings and information in the reference sources mentioned should provide sufficient information for this to be achieved accurately.

Having covered generalities, it is now time to discuss the examples of aircraft shown. Of these the simplest conversion is

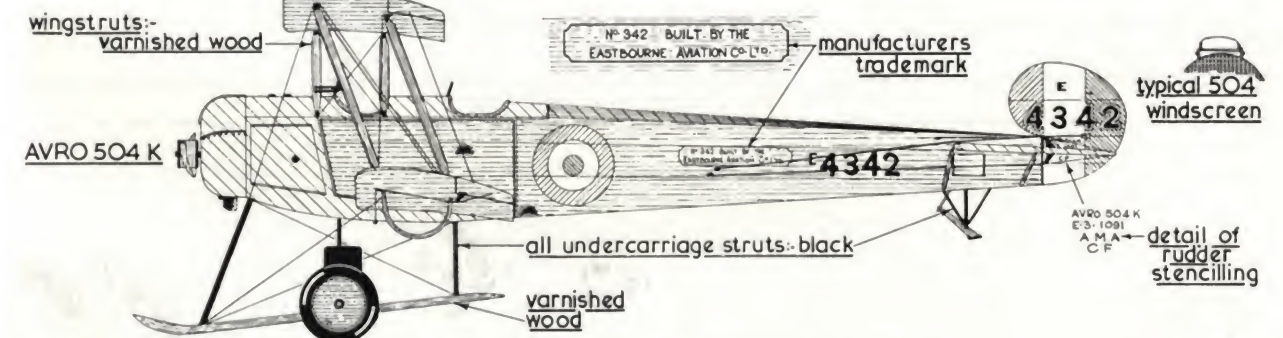
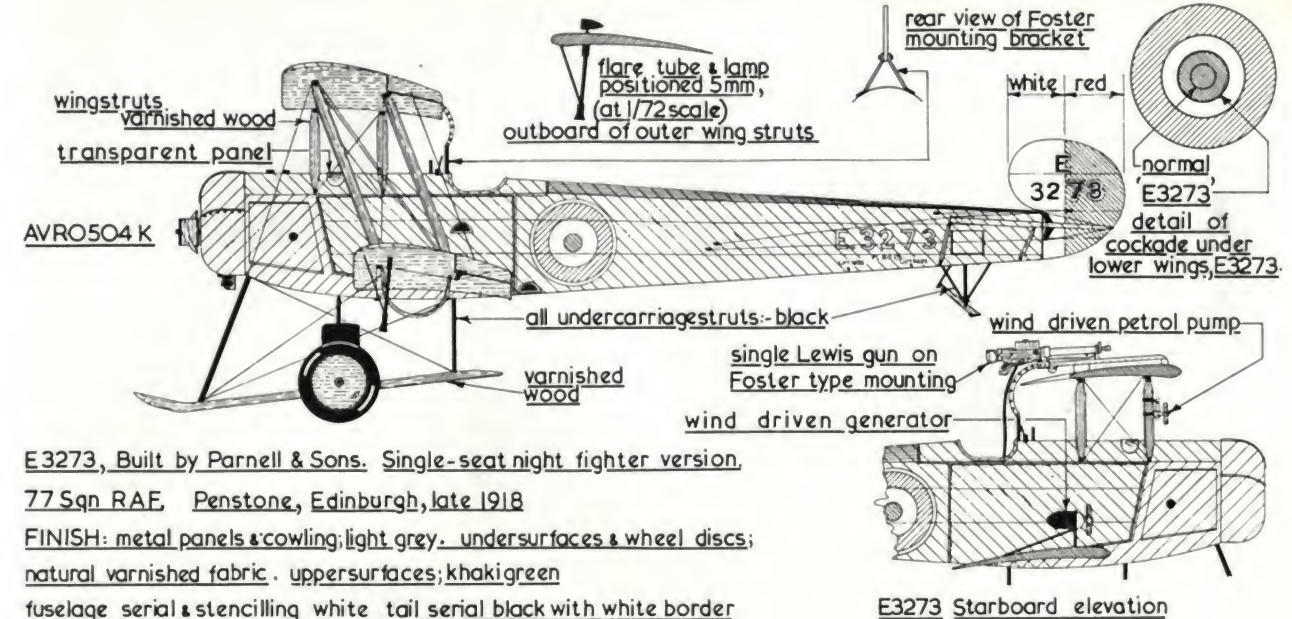
E4342, one of the aircraft offered as an alternative in the transfers provided with the kit. The general colouring instructions in the kit are accurate and should be followed closely. Variation comes in the actual markings themselves. It will be seen that on the actual machine the fuselage and rudder serials had their prefix letter 'E' at half the size of the digits. This was a common occurrence with 504 aircraft. Also the original machine was the 342nd Avro 504 built by the Eastbourne Aviation Company and carried a black stylised stencil to that effect on its fuselage sides as drawn. There was also stencilling on the white rudder stripe as indicated. A further set of stencilling appeared below the rear cockpit but was not readable on the photographs from which these notes and drawings were prepared.

H2278 is a straight 'paint conversion', which after completion as the basic kit needs merely the cowling stripes and the altered serial added. The stripes are easiest produced by painting the complete cowling white and then blocking out the white stripes with strips of masking tape (eg, Sellotape) cut to size. After a coat of cockade red these are removed and a suitably striped cowling results. A point of interest with this machine is the fact that whilst it is an Avro-built aircraft the photo examined shows no evidence of the customary Avro trademark. This indicates a machine which had seen service and had been re-covered or painted on at least one occasion. Under-wing serials were carried in the manner of those aircraft illustrated on the kit package, facing rearwards on the starboard wing and forwards on the port wing.

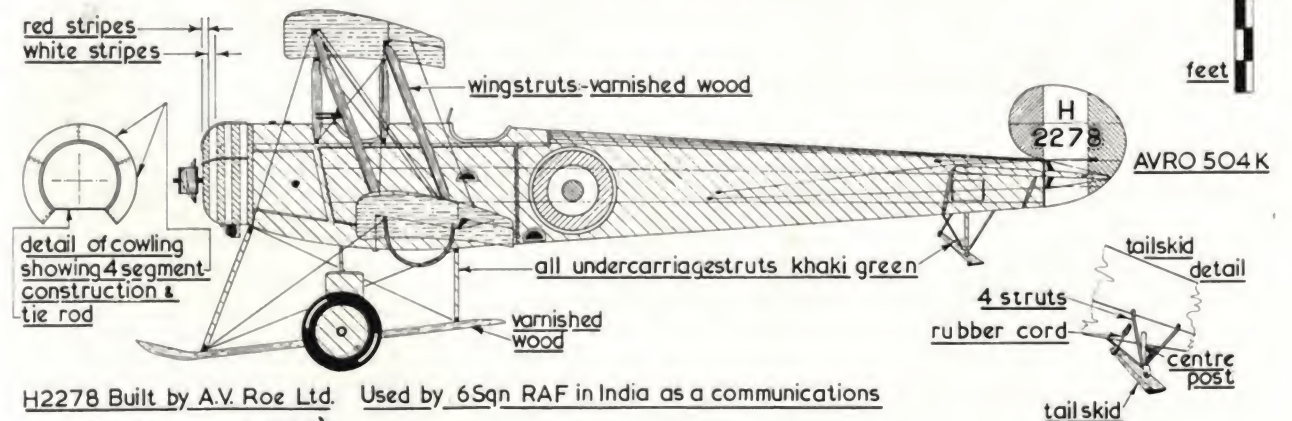
E3273 represents the single seater fighter version. The kit can be converted to this role by filling in the front cockpit, either with a wooden plug which should be sanded and sealed before painting, or with body putty after providing a support or supports out of sprue or card in the cockpit aperture. This again will need to be sanded and in doing so the cockpit coaming should be filed flush with the fuselage shape. The original appeared to have a transparent panel in this area as indicated. This can most simply be represented by painting the area required in black and covering this with a clear Sellotape patch cut to shape. The kit may then be completed as in the instructions with the kit, and the additional details as drawn can be added. The Lewis gun carried was mounted in the centre of the top wing. To accommodate this, the fuel tank was moved outwards to a position between the first pair of wing ribs on the port outer wing panel (ie, 4.5 mm in 1:72 scale). The gun was mounted on a Foster-type mounting similar to that used on an SE5. The gun was fired by a Bowden cable from the cockpit. A second, thinner, wire passed from the cockpit to the front of the mounting, its purpose being to release the gun and allow it to be pulled down for reloading. This aircraft had been fully converted as a night-fighter and carried a large wind-driven generator close to the fuselage on the star-

Continued on page 226

AVRO504 K



E4342, Built by The Eastbourne Aviation Co. Ltd. shown here in factory condition
FINISH: metal panels & cowling: light grey, all undersurfaces, fuselage, sides & wheel discs: natural varnished fabric, uppersurfaces, including fuselage decking: khaki green, fuselage stencilling, rudder stencilling & serials: black
note white border on rudder serial & small sized serial prefix 'E' in both cases



H2278 Built by A.V. Roe Ltd. Used by 6Sqn RAF in India as a communications
aeroplane during early 1920's

FINISH: all uppersurfaces including wheel discs: khaki green, all undersurfaces: natural varnished fabric

Avro 504K — continued

board lower wing as drawn. It also carried flare tubes and lamps on either lower wing, these being approximately 5 mm (in 1:72 scale) outboard of the outer wing struts in each case.

All of these details appear to have been painted black, though the curved front of the larger generator shows up as white on my reference photograph (see *Warplanes of the First World War, Fighters*, Volume One, by J. M. Bruce, page 36). Fuselage cockades appear to be as the kit transfers but the wing cockades have an enlarged centre as drawn. Also it would appear that the rudder was painted equally in red and white only. Serials for this machine can be arranged from those supplied with the kit. A second machine with this squadron was serialised E3278. Underwing serials were carried as mentioned in the description of H2278.

G-EBOF was a five seat conversion Avro 536 used by Surrey Flying Services for joyriding. The main conversion was the enlargement of the rear cockpit to seat four passengers and the widening of the fuselage by 9 inches on the full-sized aeroplane. On the model this can be achieved quite simply. Firstly, the fuselage halves should be cut at the point where the joint between fabric and plywood runs down the fuselage aft of the rear cockpit. Two pieces of styrene sheet are cut 3 mm wide and are inserted between the fuselage halves at the rear of the cockpit, bringing the fuselage sides parallel to each other instead of tapering rearwards as originally. At the same time, two more pieces of sheet are cemented, one inside each fuselage half, so that they project out from the cut off nose portion and will thus provide a register for the rear sections. The rear halves are then offered up to the



Above: An Avro 548 conversion from the Airfix 504K kit, featuring the ADC V-8 engine. Finished as G-EBFM of the Henderson School of Flying, Brooklands, it has silver wings, tailplane, and nose, and red fuselage. Fuselage letters are white and wing letters are red (Model and picture by Peter L. Gray).

front and will need sanding on the cut line to make them a smooth fit. This completed they can be cemented into place using the locating tabs. When dried, the resulting gaps are filled with body putty and sanded smooth. The rear cockpit is enlarged by filing out its forward end to leave 1.5 mm of plastic between it and the front cockpit. Completion of the model is then as in the kit instructions.

The photograph from which the marking detail was taken showed that at the time this aircraft's wheels were uncovered, leaving their spokes on view. The perfectionist can make such wheels using a rolled styrene card rim together with stretched sprue spokes and a stretched ball pen refill hub. However, it can be assumed that this aircraft did have its wheel discs fitted on occasion and that when fitted these would have matched the decor of the rest of the machine and be royal blue. Painting details are as drawn. Registrations were carried similarly above and below the wings and were read from the rear.

Basic Railway Modelling — from page 213

frames just forward of the cylinders—Fig 3. This will not interfere with re-fitting the Triang-Hornby body but is necessary as the Airfix footplate is lower at this point. So that the front end of the Airfix footplate is properly supported, layers of plastic card should be built up between the frames at the front of the Triang-Hornby chassis to a height level with the tops of the frames. Cement these pieces of plastic card together and leave overnight to set but do not cement them to the footplate just yet. Cut away the ribs on the underside of the Airfix footplate against which the mainframes are intended to rest.

Now, with the plastic card packing at the front end in place, fit the footplate on to the chassis and check that it is level. When you are satisfied it is properly in place, drill from underneath the Triang-Hornby chassis through the fixing hole in the chassis (this is the second hole from the front) through the plastic card packing and through the footplate using a No 50 (or smaller) drill. After separating the parts, the hole through the plastic card packing piece should be opened out to clear the fixing bolt. The hole in the footplate can then be opened out to clear the fixing bolt head. Now the packing piece can be cemented to the footplate and the whole lot should be left to set thoroughly. Assembly of the remainder of the body is simply a matter of following the Airfix

instructions.

One of the least desirable features of the Triang-Hornby model is the cylinders, slide bars, and crosshead. In fact there are no crossheads and the slide bars are dummy ones moulded with the body in splendid isolation from the connecting rods and piston rods which—on the full-size locomotive—they are intended to support. Of course, one can see why these things are done on a mass-produced working model as it must simplify production and keep the price down considerably. The Airfix slide bars and cylinders look very much better and could be fitted in place of the Triang-Hornby pattern if you are using the Triang chassis on its own. But this would mean cannibalising the Airfix chassis and unless a second Airfix kit is purchased there would be no complete chassis on which to mount the spare body if you are working on the 'body switching' idea. If you do want to display your non-working 'Battle of Britain' in the shed yard there is an alternative method, however. This is to cut off the slide bars from the Triang-Hornby *Winston Churchill* body and mount them on the chassis. Fig 4 shows the method used. Basically this involves forming a 'collar' out of plastic card around the Triang-Hornby chassis at a point forward of the leading coupled wheels. The dimensions are not critical so long as the collar fits snugly and does not

move. The Triang-Hornby slide bars are then cemented on to spacing blocks made of layers of plastic card and cemented to the collar.

Adapting the Airfix chassis to take either the Airfix or the Triang-Hornby body is relatively simple. Layers of plastic card were built up at the front end between the mainframes and a hole was drilled through them to take the Triang-Hornby fixing bolt. You can, if you like, bury an 8 BA nut in the layers of card to take the bolt, although I found sufficient purchase was given to the bolt if it was simply screwed into a force-fit hole in the card. At the rear end I built up a platform projecting from the rear of the mainframes and supporting the firebox. Fig. 5(a) and (b) show the general idea, although I have deliberately avoided showing any dimensions since these should be checked against the model. It is sufficient to say that the width of the platform at its widest point should be no wider than the width of the opening in the footplate, ie, 22 mm. If the lugs are made to fit the square holes in the back of the Triang-Hornby firebox they will also support the Airfix body. I hope the illustrations will show how the platform was constructed as it is a much easier piece to make than describe.

(Continued next month)

AIRFIX magazine

photoPAGE

More rare pictures from readers with captions by **Michael J. F. Bowyer**. A free Airfix kit is awarded for every picture published, but please note that there is usually a delay of some months before publication due to the limited space at our disposal.

Key: (1) From John Hindley we have this fine flying view of Catalina IV NZ4955:KN-L of the RNZAF about 1950. White/grey finish. (2) Alan Thompson sent this picture of a Hudson A-16-57 of 13 Sqn RAAF at Darwin in 1940, complete with B Type roundels and underwing serials.



Key: (3) Also from John Hindley, Hellcat JV782, possibly coded C-7B in British Pacific Fleet markings. Anyone know the unit? (4) F-84E 92299 of 36th FG in 1951, flown by Col Robert L. Scott. Blue-white-red bands on nose, red-white rudder stripes, and yellow tip tanks with red flash. Stylised 'flying tiger' on nose is motif of 74th Fighter Sqn, USAF. Picture by A. Jones. (5) Interesting view of a RNZAF P-51D Mustang on delivery at Mangere, NZ, in 1948 with New Zealand and USAF serials and Type D roundel applied straight over US star. Aircraft is silver with black A/D panel and possibly yellow rudder. (6) Harvard of the RNZAF at Mangere in 1948, all yellow with red cowl, black A/D panel, and red motif under cockpit. Serial NZ1063. Pictures by Kenneth Meeham.



Key: (7) From Mirek Juricek comes this view of Spitfire LF Mk IX of the Czech Air Force in 1948. Standard RAF finish, grey spinner, Sky tail band, white Czech serial, and small white RAF serial on tail. (8) Hans Obert sent this view of two Ju 88 A-4s of KG 51, Russian Front, 1941. SK+DS (nearest) and SK+FR. (9) A unique shot—a 21 Sqn Blenheim IV YH-J which crashed in the desert during detachment to the Middle East. Serial 77358. Picture by A. Jones. (10) An early version of the Vickers Victoria, possibly of 216 Sqn is refuelled from cans in the desert. Time, place, and serial unknown. Picture by John Allen.



ROMAN FRIENDS AND FOES

BY BOB O'BRIEN



THE use of machines, instead of men, to launch projectiles at an enemy, started with the Greeks, who had in use arrow-throwing catapults, like very large bows laid on their side, the arrow being fitted in a trough running at right-angles to the bow. These were effective enough, but later were supplemented by the more powerful machines using the torsion of twisted rope to operate the throwing arms. The Romans used a variety of war machines, both large and small, and basically all these machines can be put into two classes—those with a more or less flat trajectory, and the others with a curved path to the missile, much the same distinction that applies to modern artillery, the gun firing more or less direct, and the howitzer, especially designed for indirect fire.

The basic difference between the construction of the two main types is that in the 'gun' type (ie, the Balista) the projectile was laid in a trough, which carried a slide which could be drawn backwards against the torsion or tension of the operating arms, held in position, and then released to fly forward along the trough, taking the missile with it and sending it on its way.

The 'howitzer' type had the missile in a cup or in a bag attached by slings to an arm moving in a vertical plane. The arm could be swung backwards against the torsion of the ropes (or sometimes human hair) used to provide the power, and held in position until released quickly, when the arm would swing forward and up, rather like the action of a bowler in cricket. However, a heavy stop was provided to arrest the arm at about the top of its arc, thus letting the missile fly out of the cup and continue forwards and up, to descend in a curve on top of its target, not *into* it as with the direct fire machine. The drawings well illustrate the basic principles.

Both types of machine varied in size, from light arrow throwers that could be quickly set up to come into action, or were actually set on carts

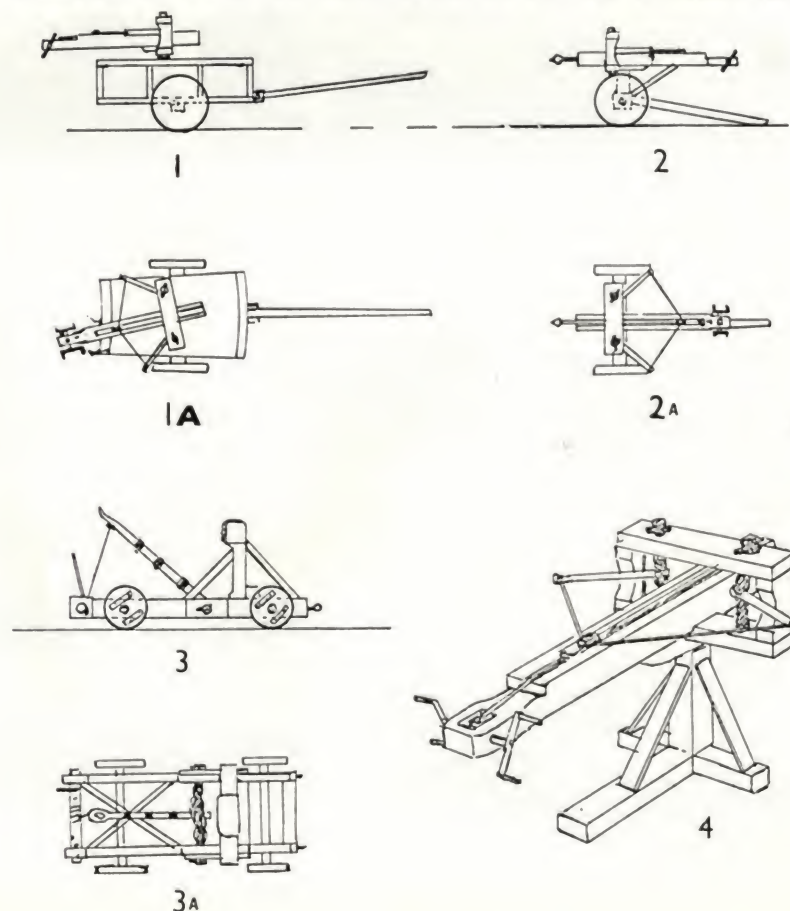
Part 4: Roman Artillery

or wheeled carriages, to very heavy Balistae throwing heavy spears. There were also large catapults and onagers throwing rocks or bags of stones weighing up to 200 pounds. All of these weapons could outrange any hand bow, were extremely accurate up to about 200 yards, and could range up to 400/500 yards. Apart from arrows or rocks, the Balistae could project short bolts, the ancestors of the crossbow quarrels but larger, while the catapults could be used to hurl fire-raising projectiles consisting of a

rock wrapped in tarred rope and cloth soaked in oil, the whole lot being set well on fire before launching.

The principal use of these engines was in sieges, but the light types could be used in the field when a barrage of fire was needed to cover, say, a river crossing in the face of an enemy. A Roman legion in the time of Hadrian had on its strength a Balista for each century (approximately 80 men) in the legion, giving about 55 of these machines, and in addition each cohort had a larger stone-throwing onager, making ten for the legion. The Balistae were mounted on wheels, and would be drawn by mules, or by the soldiers for short periods if need be, while the heavier onagers would be put on carts (a type of ancient 'low loader') drawn by oxen. All these machines could, if concentrated, lay down a heavy barrage of fire, and it was under such a barrage—which kept the defenders pinned down behind their ramparts—that the Romans advanced to assault so many of the British hill forts during their invasion.

Key to drawings: (1 and 1A) Balista mounted on a truck. (2 and 2A) Side and top views of Balista mounted on wheeled carriage. (3 and 3A) Side and top views of catapult on four wheel carriage. (4) Fixed ground mounting for Balista. Dimensions of these are not critical as they did not come in standard sizes.



Above, left: A Balista on a light wheeled carriage as shown in Drawing 2 and a Balista on a fixed ground mount as in Drawing 4. **Right:** Catapult on four wheel carriage complete with crew and mules. Note the figure stripped to the waist—made from a 'native' out of the Tarzan set with a Roman head substituted. Figure with mules is an auxiliary. Average size of the artillery pieces is clear from contrast with the figures.

Modelling Roman Artillery

All the models shown are made from toughened polystyrene sheet (plastic card) of various thicknesses, cut into suitable sized strips to make up the cross members, etc, of Balistae, while for the larger and heavier types of machine, plastic strip will have to be built up to get the required thickness. 40 thou is about 1 mm, and this equals 3 inches in the Airfix OO/HO scale, so that to get, say, a foot thick beam one must use four thicknesses of 40 thou. Alternatively, balsa can be used, or the sprue from kits trimmed to shape for the throwing arms of onagers. The crossbeams which stopped the throwing arm were always padded with leather to take up some of the shock and this can be represented by either thin plastic suitably coloured, or by model aircraft tissue wrapped around and glued down in place. Alternatively, if one has some scraps of good quality leather or 'leather type' plastic around, then these can be the best of all. Throwing arms of catapults are pivoted on wire of 18/20 gauge, and thick string wrapped around the wire and round and over the lower part of the arm represents the torsion ropes. In the full-size machine these ropes would be capable of being tightened up by means of a spanner operating on the ends of the pivot, and controlled by a ratchet acting on a toothed wheel fixed on the end of the pivot rod. The rear of the machine had a windlass set across the frame, and from here the throwing arm was drawn back against the tension of the ropes.

The various types of arrow and spear throwers were capable of a limited traverse and elevation and depression on their mountings. The slides were drawn back by a small windlass set at the rear of the trough. The model's throwing arms are connected to the slide by thread, and themselves are made from large pins cut to length so as to leave the head in place. The opposite end is then pushed between a double length of button thread which is threaded through the top and bottom holes in the cross beams on each side. These thread loops can then actually be 'wound up' by inserting short lengths of 16/18 gauge wire in the ends and twisting so as to put tension on the thread and hold the arms tightly. These short lengths of wire must then be stopped in position by using paper clips to hold fast while the whole torsion assembly is glued and allowed to set in position.

Wheels can be taken from the Airfix Roman chariot for the mobile Balistae, while the wheels for the light stone throwers are made from plastic discs with strip plastic glued across to represent the strengthening metal plates. Tyres on these larger wheels are represented by thin plastic strip wrapped around the circumference of the finished wheel and glued in place. On all these models, iron parts have been painted with Airfix 'gunmetal' paint, including the tyres, while the wooden frames have been painted with Humbrol Railway colours, either the Red Bauxite, or the Track colour.

Of the figures shown in the crews, one is the Airfix Roman officer mounted

on a base of 60 thou sheet plastic, with the pegs on the feet fitting into corresponding holes drilled in the base, and then glued. The two gunners stripped to the waist are made from Tarzan set natives with the spears cut away, and Roman heads fitted. In one the arm has been cut off and then reattached in a slightly different position. Working one of these ancient pieces of artillery must have been a warm job—I have seen modern gunners in desert conditions stripped to shorts, boots, and tin hat, and there is no reason to doubt that the Roman would do the same thing.

Of the other two figures, one is a legionary with the sword cut away, wearing plain leather uniform, while the other represents an auxiliary, and is actually a Robin Hood billman with a Roman head. All these figures can be arranged so as to be 'working' the various engines, while one would have to be shown as holding the mules, a pair of which are represented by either Airfix Wagon Train or US Artillery horses. Use those without saddles and connect them with a piece of thin wire.

For wargaming purposes, the number of crew per machine would depend on the rules you used, but the *minimum* number to work a Balista should be two, I would think, with four for the catapult. One would also want a horse holder for the mules or oxen, and an officer for, say, every two, or at a pinch, three machines. For scenic dioramas you could easily double these numbers for a more authentic 'busy' appearance. Bear in mind that some men would be detailed specially for 'ammunition supply'.



Reader A. Dodsworth of Hull sent us these two views of his conversion of the Airfix Beaufighter to a Mk 1F, T4638:NG-F, of 604 Sqn, with the suggestion that anyone who doesn't feel up to adding Merlin engines as described for the Mk 11 conversion in our November, 1968, issue will find this Mk 1F rather easier. Add radar aerials from heat-stretched sprue as shown in our November drawings and alter the tailplane to the horizontal type. Codes and serials on the aircraft modelled were pale grey.

NEW KITS AND MODELS

NEW FROM HASEGAWA

TWO interesting kits produced by Hasegawa in Japan reached our office by way of H. A. Lieto, No 1H, New Kimberley Street, 1st floor, Kowloon, Hong Kong, recently. They are of the SAAB Viggen and the OV-10A Bronco. The former sells at 12s and the latter at 11s. Both are available direct from the above address and prices include airmail postage, which seems very reasonable to us.

The Viggen model, which has 60 parts moulded in silver plastic, is an exceptionally good kit. There is a complete absence of any flash and even the smallest parts click into place with precision. The model is based on one of the early prototypes of the Viggen which has dihedral on the foreplanes. Its transfer sheet shows the milled fist with lightning flashes which was carried on the first three prototypes.

The Bronco has 57 parts and is based on one of the late pre-production prototypes. Service machines now coming into operational use have an additional fillet between the leading edge of the fin and the tail boom which should be easy for the average model maker to add. Reference on these prototypes can be found in *Flying Review* for June, 1968, and *Flight International* shows, in its August 29 issue, one of the early production aircraft belonging to the USAF in its grey overall scheme. The model has the production aircraft's bomb carrier under the fuselage and also the wider span wings of the late prototypes before production was started.

These are both top-rate kits at a reasonable price. It should not be long before the models are imported by the various retailers specialising in foreign kits but if readers wish to make use of the service offered by H. A. Lieto they would stand to get their requisites just that little bit quicker. Lieto can also supply all other Hasegawa kits and has a price list available. Midori tanks can also be supplied by Lieto at only 1s 6d each, but in this case a minimum order of 9s plus 2s postage is needed. A.W.H.

PLAYCRAFT LOCOMOTIVES

FROM Playcraft Toys Ltd we've had samples of the latest additions to their range of HO, 1:86 scale, rolling stock. They are manufactured in France and represent French National Railways—SNCF—prototypes.

First is a very fine 0-8-0 tank locomotive, based on the SNCF, formerly Etat, Class TA of which there were 143 built during the period 1914-22. Noteworthy

features include the working valve gear, illuminated head and tail lights and the crisp, clean, plastic moulding featuring scale size rivets and all relief details without flash or casting lines. All the wheels are flanged but the connecting rods are jointed to enable the loco to traverse 15 inch radius curves. The 3-pole 12 volt motor is installed entirely within the boiler, leaving the cab unobstructed



The performance is splendid, particularly the slow speed control and the positive starting and reversing. A substantial lead weight and rubber tyres on one pair of wheels aid adhesion and on test our sample took eleven heavy and none too free-running Hornby Dublo coaches with no trace of slipping. There are two versions available; one with side sheets to the cab, painted green and black with yellow lining and carrying the running number 28, the other has open sides to the cab, is painted all black and is numbered 112. They cost 103s and 100s respectively.

The moulded plastic bodywork and bogie side frames of the next model, an SNCF diesel-electric locomotive CC 70.002, are superb. Quite the most amazing feature is the clarity with which the ventilators have been moulded to allow daylight to show through. The model is attractively finished in a two-tone blue/grey colour scheme with white letters, numbers and styling flash. The cabs have metal handrails and the windows are glazed. Headlights are fitted but only at one end of our model, although it would appear it is intended they should be fitted at both ends. The model performs smoothly but unlike the 0-8-0T is not happy when heavily loaded. About five or six Hornby Dublo bogies appeared to be its limit but the lighter and freer running Continental rolling stock could be taken in larger numbers. A heavy cast lead weight slung low down in the centre of the frame together with one pair of rubber tyred wheels overcomes any tendency to slip. The 3-pole motor drives

through a complicated chain of what appear to be plastic gears coupled to all wheels of one of the six-wheeled bogies. The other bogie picks up the current through split axle metal wheels and an ingenious system of lightly sprung metal contacts. One of these contacts was missing on our sample. The model costs 74s 6d.

The Autorail Panoramique might be a stranger to British modellers but 10 of these railcars were built by Renault for operation on the scenic routes of the SNCF in the Mediterranean area and the Playcraft model of this type is lettered 'Geneva-Nice'. The model has a strong but finely detailed plastic body coloured red and yellow, the standard SNCF railcar colours. The feature of the model, as



in the prototype, is the large 'Vista dome' raised centre section. This is glazed with curved glass panels and the interior has a full complement of seats. One of the bogies is a self-contained power bogie which propels the model smoothly at realistic speeds. The model is substantially weighted although, of course, adhesion is no problem for a railcar. This model costs 69s 6d. N.S.

TANK PARTS

FROM Jerry's Hobbies, 733 South Main Street, Santa Ana, California 92701, USA, we've had the first release of what seems to us to be an exceedingly good idea for tank modellers. These are conversion parts moulded in plastic specially for use with Airfix kits. First, and most handy, is the Jagd Panther superstructure which goes on to a suitably modified Airfix Panther chassis to produce a very quick and impeccable Jagd Panther replica. Vacuum formed in white plastic card, this is a refinement of an idea described by Kenneth Jones in our May, 1967, issue.



The building of a Jagd Panther using this conversion item is fully covered in this month's Military Modelling feature so needs no more description here. The second release is a Porsche turret for a King Tiger, the very subject of Kenneth Jones' article, though with this item you have, of course, to be prepared to make the King Tiger first by combining Tiger

Continued on page 232

AIRFIX magazine

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January, 1969

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- No 4. (Due mid January) Supermarine Spitfire Mk I to XVI in R.A.F., R.A.A.F., S.A.A.F., R.N.Z.A.F., R.C.A.F. and Foreign service.

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- No 6. W.W.I British, includes national insignia both with and without white outline, in the correct light blue shade. Also has rudder striping and Lift Here etc marking plus various makers trade marks eg Sopwith, A. V. Roe etc.
- No 8. W.W.I French, includes national insignia, rudder striping, nos and small stencilling.
- No 9. W.W.II Luftwaffe Geschwader and Staffel emblems, 40 pairs of emblems (left and right sides) on this sheet, an absolutely splendid piece of work.
- No 10. Complete markings for 6 machines (P-40B or E) of the A.V.G. in China. Leaping Tigers, wheel discs, back patches, everything.
- No 11. 13 Condor Legion emblems (paired), plus 11 Italian emblems (paired), as well as numerals and national insignia for the Spanish Civil War.
- No 12. Luftwaffe numbers, 3/8", white, red and yellow all outlined with black.
- No 15. Luftwaffe numbers as above, but with colours reversed.
- No 16. W.W.II Luftwaffe Geschwader and Staffel emblems. A further 38 pairs of emblems continued from sheet No 9.

Postage for all decals: Up to 3 sheets, 6d. 4 and over, 9d. UK rates only.

246 Kingston Rd Portsmouth

Tel • Portsmouth 61469

New Kits — continued

and Panther parts as fully described in our October, 1966, issue. Having a ready moulded turret to hand does overcome the most difficult part of this model, though it is still necessary to add the hatch detail to the basic moulding.

These conversion parts cost 50 cents each from Jerry's Hobbies, but for mail order purposes a minimum order of \$1.50 is required with 50 cents added for postage, all payment by International Money Order. At present there does not appear to be a British stockist. C.O.E.

TRANSFER NEWS

FURTHER additions to the Micro Scale Decals series are all military sheets which follow the previous Micro Scale practice of covering both 1:76 and 1:48 scale on one sheet. Sheet 17 covers British and Australian AFV insignia of World War 2, with a selection of 24 pairs of formation signs, a range of white lettering for WD numbers, an assortment of tank names, and some kangaroo emblems as used by Australian troops on some captured tanks. These are all duplicated in each scale. There are two different styles of Guards Armoured Division emblem, and, on our sample, the 3rd Division badge is incorrect, probably due to a printing error. Sheet 18 is a set of assorted US insignia, comprising stars with and without circles, plus a selection of tank names, again in each scale. On Sheet 19, SS-Panzer and panzer-grenadier divisions are covered with numerals and letters for number plates, divisional emblems, three styles of turret number, and crosses in white outline style—more than 200 separate items with the emblems in both red and white. Finally, Sheet 20 covers German panzer and infantry divisions with divisional emblems in both yellow and white, plus a selection of white outline crosses and plain white crosses as used in the Polish campaign. These are all excellent quality at \$1.50 per sheet. In many cases, incidentally, the 1:48 scale emblems and markings are small enough to be used on the larger 1:76 scale vehicles. This would even apply to turret numbers. Martin Krasel Studios, Culver City, California, USA, can supply, postage extra. We gather that Modeltoys of Portsmouth are now stocking Micro Decals in Britain.

Jones Bros, 56 Turnham Green Terrace, Chiswick, London W4, have sent us a new sheet of German World War 1 crosses—both the straight and 'iron cross' variety—for 1:72 scale. This is the old style 'glossy' type of transfer which does not match the best now available. However, there are few, if any, crosses of this type available elsewhere and the price is modest at only 1s 6d a sheet plus postage. Many of the crosses on the sheet, incidentally, are small enough for application to German World War 1 tanks.

Exact Scale Hobbies, 97 James Street, Bloomfield, NJ 07003, USA, write to tell us that we quoted the incorrect price for



Above: We reviewed these three attractive Monogram 1:72 scale fighters of the 'thirties last month, but lack of space forced us to hold over the picture.

their Storch and Me 109 transfers reviewed in the November, 1968, issue. In fact the price is \$1 per sheet only, cheaper than we stated. We also received the Exact-a-cal sheet for the 1:50 scale Artiplast model of the SM 79, which retails at \$1.25. The identical sheet in 1:72 scale for the Airfix SM 79 was reviewed in our July, 1968, issue. For most British readers this is of academic interest only as few, if any, British stockists have Artiplast kits. Innovation with the 1:50 scale SM 79 sheet is fully registered printing—previously all Exact-a-cal sheets had all colours separately printed.

Finally, we have the second editions of the first Almarks transfer releases. German swastikas and SEAC roundels and tail flashes respectively in 1:72 scale. These sheets now have new layouts with additional items included, price now 3s per sheet. C.O.E.

THREE FROM FROG

NO sooner had our article on the Lightning F6 gone to press for last month's issue than we received a sample of the new Frog kit of this aircraft, which extended coincidence still further by depicting the very machine of 11 Sqn which was featured in Roger Levy's article. However, the kit from Frog turns out to be an excellent replica of the F6 which fits together very well, is nicely detailed, and well captures the F6's rugged character. The markings are exceptionally good and the comprehensive transfer sheet enables the model to be finished either as the 11 Sqn F6 or as an F53 of the Royal Saudi Air Force, complete with masses of tiny Arabic stenciling. There are colour views on the box which simplify the task of positioning these complex markings. We note that the model lacks an arrester hook, but this could be added (as could one or two other painting details) by anyone who refers to our article in the last issue. This kit costs 6s 9d.

Another famous jet released by Frog at the same time is the North American Sabre which appears, in fact, in Canadian Sabre 6 guise. Once again two sets of transfers, Luftwaffe and RAAF, are provided, but the RAAF markings (for 76 Sqn) are inappropriate as the kit stands—



Left: Frog Lightning 6. **Right:** Ruch Iskra.

to make a Mk 32 as used by the RAAF you need to change the guns and the engine cover detail. The Luftwaffe markings are very well done and most colourful, though clear varnish was very necessary to stop them lifting off. One feature which mars an otherwise fine model is lack of wheel wells, but the positions are marked so could be cut out (or painted matt black) to overcome this omission. The Sabre kit costs 4s.

Both the Sabre and the Lightning appear to be from the same moulds as the Japanese Hasegawa kits. The Sabre exactly matches the Hasegawa Sabre we reviewed last year, and the Lightning appears to be a double of the Hasegawa



Above: New Frog Sabre and Fw 190A models.

Lightning F6 of which we glimpsed an advanced sample at last year's British Toy Fair. Transfers, instruction sheets, and packaging are, however, entirely different.

Last of the Frog trio is a re-issue of their Fw 190A which first came out some years ago. The mouldings have been much cleaned up and improved, however, and there are new transfers—again for a choice of two machines. If the fighter version is chosen, however, you would need to remove the bomb rack fairing moulded on the fuselage. Once again, this model lacks wheel wells, but we found a very swift (and surprisingly effective) way of representing them was to use De Frey 'solid' black transfer sheet cut to shape and applied after the model was painted. The kit also lacks a seat and other internal detail, all of which need adding. And finally, while quite accurate, it needs the leading corners of the wing tips rounded off to give a satisfactory plan shape. Price of this kit is 3s. All three models are obtainable from Jones Bros of 56 Turnham Green Terrace, Chiswick, London W4, who hold stocks and supplied our review samples. C.O.E.

MODEL FROM POLAND

By courtesy of reader M. Kaliszewski we have been able to obtain a sample of a recently introduced Polish kit, made by a firm called Ruch, and appropriately enough depicting the TS-11 Iskra primary jet trainer which now serves with the Polish Air Force. Unlike previous kits we've seen from Eastern Europe, this one turns out to be exactly 1:72 scale, and furthermore surprisingly good by comparison with earlier kits we've seen from that part of the world. Still pretty crude by British or US standards, it can be turned into a most acceptable model, well worth adding to a 1:72 scale collection. The wing roots join almost by accident, and there are some appalling moulded-in nosewheel doors which need replacing with plastic card. With these crudities

AIRFIX magazine

overcome, however, the model looks quite pleasant. The transfer sheet is so poor as to be unusable, but the Polish transfers from the Airfix Mig-15 make good replacements. The kit comes in a polythene bag, packaged very like Airfix kits. Also in the range is a 1:72 scale Mig-15, though we've not seen that.

The Iskra kit cannot, of course, be purchased outside Poland, but you may be able to get it via Polish pen friends on an exchange basis, or through visitors to Poland. C.O.E.

NEW MINITANKS

SOME fine additions to the Minitanks 1:86 scale range of military models have just come our way. In order of release these are the M88 ARV which has masses of detail plus a swivelling boom, dozer blade, and opening cupola. This is the current US and West German heavy recovery vehicle and in model form it costs 4s 6d. Next, priced at 3s each, came both versions of the wartime Volkswagen, in amphibious and utility forms respectively. Beautifully detailed they are, unfortunately, on the small side to go with Airfix 1:76 scale models, but they are good models all the same. Last of all there is a very accurate replica of the Saladin armoured car, again priced at 3s. Ideal for HO collections, it is rather a pity that these models are all on the small size to go with Airfix tanks, though this does not, of course, concern those who collect Minitanks in their own right.

Available from most model shops, all these Minitanks releases can be had direct from the importers, Model Hobby Products Ltd, Akroyd Place, Halifax, Yorks, if you can't get them locally. In this case postage must be added. Available from this address at 6d is the latest edition of the Minitanks catalogue which illustrates the whole range. C.O.E.

NEW CATALOGUES

WE'VE just received a most impressively produced Fleischmann Catalogue for 1968-69 which runs to 48 glossy pages all in colour and describes all the German-made Fleischmann items, including railways in profusion, stationary steam engines, and numerous other associated accessories. Quite apart from effectively showing off the extensive Fleischmann range it makes quite an interesting picture 'guide' to European locomotives and rolling stock. Notes about the prototype items are included throughout. Also included is a loose leaf insert giving British prices. We were interested to see that Fleischmann are to introduce narrow gauge models in 1969. The catalogue is available from the British Fleischmann importers, M & R (Model Railways) Ltd, Vassalli Showrooms, Central Road, Leeds 1, price 3s.

We've also had a copy of the Riko catalogue which illustrates all the racing cars, Tamiya tanks, ships, motor cycles, slot racing, and aircraft kits which Riko import—mainly from Japan. Almost everything is illustrated with pictures of completed models, thus giving the reader

a good idea of the finished appearance. This catalogue costs 2s 6d and includes a free entry form for a Riko competition, first prize being a Honda car, with more than 200 other prizes ranging from a Honda Moped to tank kits. Seems quite worth entering! Jones Bros, 56 Turnham Green Terrace, Chiswick, London W4, supplied our copy. C.O.E.

HUMBROL PAINTS

THOUGH they've been available for some time, we've only just had samples of the military vehicles colours in the Humbrol Authentic Camouflage range. The set consists of six ½ oz tins of German Dark Yellow, British Desert Sand, US Olive Drab, Dark Green, Dark Earth, and German Dark Grey, respectively, all essential colours for tank modellers. As usual, the paint is a very thin, quick drying type which goes on very smoothly, though good stirring is essential. Included in the carton is a leaflet with some examples of colour application to military vehicles. Price per set is 9s 9d.

Other news from Humbrol is that all the colours in their Authentic Camouflage range are now available separately, a very pleasing development in our view as some colours in the complete sets get used up quicker than others. Each tinlet in this range costs 1s 9d. C.O.E.

PLAYCRAFT WAGONS

PLAYCRAFT have also sent us several new items of railway rolling stock.

First is an articulated double-deck car carrier, moulded in silver and grey plastic and running on three pairs of metal wheels. The top decks are fitted with movable loading ramps either end and hinged plates to allow cars to be driven from one pair of wagons to another. In the vertical position these plates stop the cars falling off the ends. The handrails on the top deck are moulded in soft flexible plastic to withstand rough handling. The fine detail and ultra small but legible lettering of this model is let down by the crude appearance of the cars. They are just recognisable as their prototypes but the quality of the moulding is so inferior that they spoil the overall effect. This model complete with eight cars costs 36s.

In contrast to the car carrier, the road semi-trailers in the new Playcraft 'Kangourou' Road Rail set are superb and almost steal the show. The road wheels are sprung and shod with soft rubber tyres and the two types of body are beautifully moulded, painted and lettered. The semi-trailers are driven on to the 'Kangourou' wagons by the specially designed tractor unit—again a



Playcraft 'Kangourou' Road Rail set.

superb plastic moulding—and when in position the deck of the wagon can be lowered by means of a lever to bring the top of the trailer within the limits of the French loading gauge. The front pivot on the semi-trailer locks it into position on the wagon. A most clever and fine working model. A special loading ramp and a length of combined roadway and track which can be connected to standard Playcraft HO track complete the set, which costs 72s 6d. Extra wagons and trailers are available separately at 23s 6d.

With all these models the French Jouef couplings have been replaced by couplings similar to the British Hornby Dublo, Trix and Peco types. This conflicts with the instruction sheet enclosed with the 'Kangourou' set, which says that because the access ramp is specially designed to fit on to the Continental couplings these have been retained. However, the loading ramp appears to work quite well with the British type couplings fitted to our sample. N.S.



Above: Overall winner of the 1968 IPMS National Championships was Harry Woodman of London who is seen here with his trophy and the prize-winning model, a superb scratch-built 1:48 scale Voisin of 1909, made entirely from plastic card and scrap. The Championships were held at Maples, the London store, on November 30 last, and the judges were J. M. Bruce, P. J. R. Moyes, and Peter Chamberlain (of AIRFIX magazine). Other winners included E. Holmes (Tamiya Chieftain tank), G. Cornish (Airfix StuG III), C. Griggs (Airfix Lightning F1A), C. Huston (Revell Fokker Dr 1), G. Shutes (Historex gun team), and W. R. Matthews (Aurora Strato cruiser) (Humbrol photo).

RACING CAR SHOW

FROM January 8-18, National Hall, Olympia, is the venue of the International Racing Car Show, open daily, 10 am to 9 pm. Quite apart from the real racing cars and equipment, there are slot circuits, films, and numerous other attractions. PSL Publications, publishers of AIRFIX magazine, are at Stand 118 in this exhibition. Admission fee for the Racing Car Show is 7s 6d (adults), 5s (children). Opening day, £1 and 10s respectively.

Letters to the Editor

Plastic rods?

WOULD it be possible for any firm to produce plastic strip, just as plastic card is available, and supplied in packs in a variety of sizes.

The strips could be of circular or square section in sizes ranging from .005 inch to .100 inch dia or square, and about 9 inches long. Such a pack would be invaluable for almost any subject in modelling, for conversions or even scratch-built models.

Stretching sprue by candle flame is one method of obtaining such material. However, it is difficult to obtain a constant diameter over a given length and almost impossible to obtain a stretched square section.

J. C. Crane, Watford, Herts.

Over to the accessories firms with that idea. Slaters already make Microstrip which is simply sliced plastic card. We know of no ready source of extruded plastic as described by Mr Crane, however.—EDITOR.

Phone picture

I AM not very interested in tanks, but I always read the captions of nearly every photograph of your marvellous little magazine.

I fell upon the photos of the T-34 article by John Milsom in November issue. You think the last photo to be from a Soviet source and a propaganda photo. However, I say this is a photo made from kits, which include the Revell T-34, and some Mini tanks covered with sugar or something else.

My proof? I have in my collection a volume of *Historama*, November, 1964, a French magazine which was in the habit (around 1964) of putting colour photos made from kits of military subjects on the cover. My original clearly shows the vehicle as a Revell T-34.

Baron Hervé de Vinck, Ypres, Belgium. Well, it certainly fooled us!—EDITOR.

Gnat error

IN your issue of June, 1968, you published a letter and photograph by Frank Pringle of Selkirk, Scotland. The photograph shows Gnat XP503 and was taken on September 16, 1967, at RAF Acklington. May I point out an error in reader Pringle's letter? The number XP503 on the rear of the fuselage is not on bare metal but on a panel of light grey paint.

Roger Williams, Old Colwyn, N Wales. Belgian squadron

IN answer to the invitation of Michael Bowyer in his article 'Fighting Colours' in *AIRFIX* magazine, June, 1968, I would like to give a correction about the list of the squadrons operating in the North African desert campaign.

In this I see that 349 Sqn had the code GE. That is correct, but it wasn't entirely equipped with Hurricanes; it also used Tomahawks. Further, this squadron was a Belgian one, and was formed in Great Britain in October, 1942. It was sent to Africa to defend the Belgian Congo in November, 1942. The squadron couldn't

Letters to the Editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters columns. Please note that any letters anticipating a reply MUST be accompanied by a SAE or stamp.

reach Leopoldville and was sent to Ikeja 13 miles from Lagos in British Nigeria. It only stayed there for a few months and was sent back to Great Britain in May, 1943, where it began to operate on June 7, 1943, re-equipped with Spitfires.

André Jungbluth, Antwerp, Belgium.

'Libs' remembered

IT was with considerable interest that I saw the two Liberator pictures on your Photo Page in the November issue. I served as a Wireless Mechanic with one of what I believe were the first two 'Lib' squadrons to be formed in India.

Exact dates escape me, but I believe it was early in 1944, that I was posted to Salbani, a tiny village in Bengal, to help form 356 Sqn which so far had only three aircraft. At that time, 355 Sqn (also at Salbani) had its full 16 aircraft, and was working up to going operational. Naturally, there was much inter-squadron rivalry, and the favourite gibe hurled at any passing member of 355 Sqn was, 'Bombs away... bomb doors away.' This stemmed from an unhappy incident on the bombing range when the bombardier forgot to open the Lib's roller-blind type bomb doors.

Both squadrons finally became operational, flying many missions out of Salbani—most of them around the twelve hour mark—towards the close of the European war. Just after VE Day in 1945, we moved down to the Cocos Islands in order to move operations nearer to the Japanese, and it was from these islands that I was finally repatriated in October, 1945.

Incidentally, all our 'Libs' had the word SNAKE ahead of their serial numbers.

B. T. Jeeves, Sheffield 11, Yorks.

Details and tips

I WOULD like to add one more squadron to the November 'Fighting Colours'.

This is No 81, coded FL, an example being Thunderbolt II in usual grey-green camouflage and wing bands, etc, individual letter D white serial HD185. This aircraft also sported an Ace of Spades emblem on the engine cowl port side.

Also Mr Bowyer puts a query next to 20 Sqn codes. In November, 1945, TH was on this unit's Spitfires. No 273 Sqn's codes in December, 1944, were HH.

In Photopage of this November's magazine is a snap of a Hudson coded

ZS. This appears to be a 48 Sqn aircraft.

I would like to add a couple of tips for modellers. When converting the Boston to a Havoc I used the nose supplied in Airfix's Mitchell kit. The B-25J modified nose requires little alteration other than sanding at either side due to the thicker section of the B-25 and as this part is of fairly thick plastic, this can be done quite easily. The extra location holes for the guns are filled in with body putty.

As regards the turret, I used a spare Frog Boston nacelle cut down to the correct size and contoured off with body putty. The Marauder turret sits in this quite well. The engine intakes were made from plastic card built up sandwich style.

I also found use for a spare Boomerang drop tank by installing it in an appropriately cut hole under the nose of Airfix Spitfire kit when converting to a PR type. A minimum of body putty is required around the edges to contour off.

R. C. Wignall, Barrow-in-Furness, Lancs.

Simple wagons

READERS interested in the construction of rolling stock, either from scratch or by use of the excellent Collet card parts, may be interested in a method I have evolved.

This makes use of the plastic cases in which colour slides are returned from processing; the 36 exposure size will yield the basic parts for two vans or wagons. The width is correct to within very fine limits. All that is required is to cut out the card parts and use these to mark off the required sizes, and then, with a fine saw, cut the plastic as required. UHU will stick the card to the plastic and to fix the body to a Triang chassis is a simple matter as the chassis has four pins which can be located on four holes drilled in the bottom of the plastic casing. I have also made open trucks by use of the clear plastic top of the case with details added from Microstrip.

Narrow gauge addicts will also find that the clear plastic top will convert to a typical NG bogie wagon with little modification apart from the addition of details and bogies.

J. R. Wright, RAF El Adem.

Sailing model

IT may interest some readers to know that the Airfix Series 1 *Cutty Sark* can be made into a working model. The method is as follows: Glue the two hull halves together, then, using suitable weights, such as Plasticine, ballast the hull so that with the deck clipped in place the model is completely stable, a waterline somewhat above the original must be accepted. Deck details should be stuck in place at this stage. Do not glue the deck in place as the ballast may later have to be adjusted.

The masts and sails which come with the kit must be discarded as they are far too heavy. New masts are made from matchsticks sanded to the correct shape and size, yards are made from short lengths of bristle and the sails from tissue

paper sprayed with WD. 40 to render them waterproof.

This little ship makes a nice addition to a fish tank and on a calm day she would make a charming sight ghosting across an ornamental garden pond. A word of warning, never use the model outdoors on a breezy day or all that remain will be a few bubbles and a fond memory.

David Sleigh, Aberdeen.

Spitfire picture

THE superb colour photo of Spitfire Vbs on the cover of the November issue of *AIRFIX* prompts some comments. Firstly, the Spits are almost certainly not from No 93 Sqn, but from No 40 Sqn, SAAF. The code WR was officially allotted to No 40 Sqn, SAAF, and close inspection of the colour photo will reveal that the red portion of roundels and fin flashes is of a distinctly orange shade compared to the rich red of the spinners and code letters. Orange, the traditional colour of the Boer South Africans, was substituted for red from early 1942 onwards on many aircraft, notably Kittyhawks.

The November Photopage yet again brings some excellent studies of *rara aves* to light; I think I can fill some blanks in the captions. Photo 5 of Hudson GRI, ZS-S, depicts an aircraft of No 48 Sqn on patrol. Controversy has raged over the markings of 48 Sqn's aircraft; it now appears that this squadron's Hudsons carried three different codes at various stages, namely ZS, XS and OY. Photo 9 is of Fairey III D N9499:5 of No 481 Coastal Reconnaissance Flight. N9499 was the last of a batch of IIIDs to have the Eagle VIII engine installed. No 481 Flt re-formed as No 202 Sqn in January, 1929.

I may be able to fill a few small gaps in Mr Bowyer's superb compilation of SEAC fighters and their markings. I would agree with his identification of the line-up of Buffaloes as being No 21 Sqn RAAF, though the code GA was also allotted to No 75 Sqn RAAF. The Thunderbolt coded GQ is almost certainly of No 134 Sqn RAF; a natural metal Thunderbolt II, KL339:GQ-B, also served with No 134 later in 1945.

A friend of mine who serviced No 79 Sqn's Thunderbolts recalls that several of 134 Sqn's aircraft exhibited colourful nose-art after the fashion of *Jungle Queen*.

J. C. Page, University of Keele, Staffs.

M. J. F. Bowyer writes: A reader's letter in July, 1964, issue confirms 'OY' as 48 Sqn—he flew with that unit. Previously it had been linked with 608 Sqn. 'ZS' has long been listed as 48 Sqn—but could it be 608 Sqn?

Identification of 134 Squadron's code fills another long-standing gap.

I'VE just received the November issue of *AIRFIX* magazine and note with great pleasure the two Spits on the cover, though with not so much pleasure the blue gun port patches. These patches were usually red, which point I have just made in various captions in the past relating to Spits and Hurricanes of the Battle of Britain period.

The two Spits are Vbs of No 40 SAAF Sqn. The aircraft were modified for tropical use at Aboukir and also fitted with the locally made *Aboukir* filter. I have noted repeatedly that this filter is cap-

tioned as the Vokes in your captions. The Vokes filter was the large streamlined one, the one on the Vbs in the cover illustration was made in the shops at Aboukir. Another point of interest is that the undersurfaces are Azure blue which was not a common colour.

R. Ward, Canterbury, Kent.

ON the cover of the November issue you depict two Spitfire Vs flying during the campaign in Tunisia, 1943. The aircraft belong to 40 Sqn, SAAF.

The only squadrons to use the code letters WR were 235 Sqn, 248 Sqn, and 40 Sqn, SAAF.

235 Sqn and 248 Sqn operated in Europe and not in the Middle East. With reference to 92 Sqn, they used the code letters HN.

K. Kenyon, Dalton-in-Furness, Lancs.

SEAC colours

FOR some time I have been collecting information about the RAF in the Far East from 1941-1946 with a view to eventual publication. Consequently I read with great interest Part 12 of Mr Bowyer's series 'Fighting Colours' in which the historical background appears to be substantially correct.

Markings of fighter aircraft during the retreat from Malaya, Netherlands East Indies and Burma were described accurately, but the first re-inforcing Hurricanes in Ceylon were camouflaged dark green/dark earth with either Sky or light blue undersurfaces. Later Hurricanes and Spitfires were delivered to India in UK colouring of dark green/dark sea grey with medium sea grey undersurfaces or, ferried from the Middle East when units were transferred (eg, 134 Squadron), in standard Middle East camouflage. The great majority of these aircraft had their Sky fuselage bands painted out in Middle East or India and were then re-camouflaged dark green/dark earth. This colour scheme was standard for all operational fighter aircraft and for fighters in training and conversion units.

Late in 1944, white identification markings were introduced on single-engined fighters and became common, early in 1945, on all types of aircraft operating in association with land forces, including Indian Air Force and Royal Navy aircraft and Beaufighters and, later, Mosquitoes as they came to be used in the 'strike-fighter' role.

Spinners were usually white on Hurricanes and Spitfires—the front of the engine cowl was white on Thunderbolts (replacing the red/white chequers on the cowl of 258 Squadron's aircraft). The position of wing bands varied between squadrons and between individual aircraft of a squadron in some instances.

Beaufighters were usually green/earth until early 1945, when they appeared in dark green/slate grey camouflage with white bands and spinners. Mosquito replacements were occasionally dark green/medium sea grey but the usual colouring, again, was green/earth until about April, 1945, when the majority of Mosquito FBVs were repainted dull aluminium above and below. Identification bands were applied in black or dark blue; spinners were often aluminium finished.

The Thunderbolt coded GQ, belonged to 134 Squadron in the Arakan; AD-R was probably of 113 Squadron. The Spitfires of 132 Squadron merely had their roundels and flashes painted over before

SEAC markings were applied; this squadron was not operational in the Far East during the war.

Geoffrey J. Thomas, Worplesdon, Surrey.

Hs 129 mods

I HAVE just completed the Airfix kit of the Henschel Hs 129, which is a good kit but it has several small mistakes which need rectifying.

(1) The engine cowlings are too angular and the front edges should be rounded off with a file to achieve the correct appearance.

(2) One of the two options in the kit, the cannon armed B-3, should have the upper gun trough filled in, and should have a gunsight similar to the bomb-sight supplied for the B-2 bomber version.

(3) The blue F supplied in the markings for the bomber version is too dark a shade and should be much lighter. The illustration on the box lid has the colour about right. Also, the fuselage cross for the bomber version should have a black outline, again as on the box lid.

Finally, the upper edges of the fuselage should be slightly rounded as they are a bit too angular.

C. P. Raymont, Stafford, Staffs.

Indian soldiers

FIRST of all may I send belated congratulations to Michael Blake on his excellent US Civil War series. I noticed that he missed out the fact that the two armies made wide use of Indians in many battles (eg, Pea Ridge, 1862, and Columbia, 1865). The Indians wore normal headdresses but wore trousers.

To make an Indian on the Confederate side is an easy conversion. Take the Airfix Indian bowman and cut the figure in two, just above the loin cloth. Then take the Confederate standing firing and cut him in two, just above the trousers. Using UHU, cement the top of the Indian's body to the Confederate's trousers. Paint the trousers light or sky blue and the conversion is finished.

For an Indian rifleman, remove the bow and quiver and take a rifle from the crawling Union trooper and cement this in the Indian's hands. Then repeat the uniform change. The same conversion applies to Indians on the Union side.

David Pryce, Dursley, Glos.

Spitfire V

IN the Editor's notes concerning the Spitfires featured on the cover of the November issue, mention is made of converting the Airfix Spitfire Mk IX kit to a Mk V.

An easier and more accurate model can be made by using the fuselage, propeller, spinner, port wing oil cooler, tail wheel from the Frog Mk II. The Airfix kit provides the wings, tailplane, undercarriage, canopy, wireless mast, starboard wing radiator.

The parts from each kit are a perfect fit with each other, except for a small V-shaped wedge between the leading edge of the wings and the fuselage, this being filled with body putty.

Remove outer cannon stubs. Clip wings, if clipped wing version required. Finally, for a home-based Mk V add the Frog air intake or for an overseas type a larger Vokes filter air intake.

L. Benbow, St Helens, Lancs.

New Books — from page 206

to read format. Aircraft that have crashed are also listed under each type and this alone makes the book of value.

Unfortunately, the DC-3 has been missed from the types dealt with. This is rather a pity, but one would imagine that to deal with the civil registered 'Daks' would take a volume on its own. Still, we see no reason why the author should not go on with this work and volumes giving other aircraft types would be more than welcome.

From Blackburn

BLACKBURN AIRCRAFT SINCE 1909, by A. J. Jackson. Published by Putnam & Co Ltd, 9 Bow Street, Covent Garden, London WC2. Price £5 5s.

ANOTHER book in the excellent series of volumes on British aircraft manufacturers by Putnams. This time the Yorkshire firm of Blackburns is dealt with in great detail by A. J. Jackson who is well known for his painstaking accuracy and ability to search out little-known facts and information.

Although best known for their contributions to British naval airpower, Blackburns did produce many other interesting military and civil projects ending in the largest aircraft ever to enter RAF service, the Belfast. Aircraft such as the Dart, Ripon, Baffin, Shark, Skua, Roc and Botha emphasise that almost all of Blackburn's production has been centred on RN requirements.

These are but a few of the 50 or more aircraft dealt with in this book in a wealth of detail. Specifications, production lists, serials and a complete production and service life of each type is given, together with an interesting and well written history of the company, its development and personalities.

Manx Railways

ISLE OF MAN ALBUM, by W. J. Wyse and J. Joyce. Published by Ian Allan Ltd, Terminal House, Shepperton, Middlesex. Price 30s.

THIS 108-page album contains no less than 214 photographs and with their brief captions and eight pages of text it illustrates and describes the Isle of Man Railway, the Manx Electric and the Snaefell Mountain Railways, the Douglas Horse Tramway, Douglas Cable Tramway, Douglas Head Marine Drive, the Ramsey Pier Tramway, and the Groudle Glen. Five of these undertakings still thankfully exist and some of the illustrations show the present scene. The photographs are, however, of varying vintage but all are of excellent quality and beautifully reproduced.

Steam power

THE STATIONARY STEAM ENGINE, by George Watkins. Published by David & Charles (Publishers) Ltd, South Devon House, Railway Station, Newton Abbot, Devon. Price 45s.

THIS book illustrates and describes 52 different types of stationary steam engine. The format is uniform throughout: two pages for each engine, one containing a full-page reproduction of a photograph and the other containing supporting text and in some cases a second illustration. Brief details of basic engine features and valves are given in the introduction.

This is an extremely useful book as often stationary steam engines are casually referred to as being, for example, of the 'Inverted Vertical Triple Expansion Type' or a 'Single Tandem Compound' and the reader is left to imagine what that means and what the machine looks like. By their very nature these engines are hidden away in often inaccessible buildings and the average person has little opportunity to see them.

Premier line

NORTH WESTERN, by O. S. Nock. Published by Ian Allan Ltd, Terminal House, Shepperton, Middlesex. Price 42s.

WITH the exception of the illustrations which are all new, O. S. Nock has combined the talents of his two previously published works, *The Premier Line* and *The London & North Western Railway*, in this new work. There are over 300 pages of text and exactly 40 pages with reproductions of some excellent photographs.

In his introduction the author prepares the reader for the magnitude of the North Western. It claimed to be the oldest established firm in the business and the biggest undertaking in the country—if not in the whole world. It certainly was a giant amongst railway companies, topping its nearest rivals, the Great Western and the Midland and as a company it certainly was successful judged by the way it looked after its customers as well as its shareholders. The atmosphere of the Victorian and Edwardian eras are vividly conveyed and the portraits of the men such as Ramsbottom, Richard Moon and Bowen Cooke who had such a profound effect on the success of the Company lend drama to the story. Mr Nock's easy flowing style makes this a very absorbing book and it is difficult to put it down once started.

'Jug' in pictures

REPUBLIC P-47 THUNDERBOLT IN USAAF, RAF AND FOREIGN SERVICE, by Richard Ward and E. R. McDowell. Published by Osprey Publications Ltd, PO Box 25, 707 Oxford Road, Reading, Berks. Price 21s.

THE second publication in the Aircam Aviation series, this book deals at length with the 'Jug'—a subject that never seems to lose its interest along with the P-51 and Bf 109 with enthusiasts.

The publishers have, wisely, kept text to a minimum and concentrated on pictures. What copy there is details the operational career of the Thunderbolt and the rest is entirely photographs and side view colour drawings obviously aimed at the modeller.

Many of the photographs are newly published and have, we imagine, been taken from the photographic records of many of the ex-Air Force pilots who knew the 'Jug' at close quarters. To say the least they are excellent and we feel that with this book the life story of this famous fighter must surely be covered sufficiently enough for the most avid enthusiast for some time to come. Let us hope that future Aircam publications will cover some of the lesser known aircraft.

COMING soon from Arms & Armour Press is an English-language edition of *Die Deutschen Panzer*, the comprehensive book covering all German AFVs from 1926-45. It will include extra pictures not found in the German edition.

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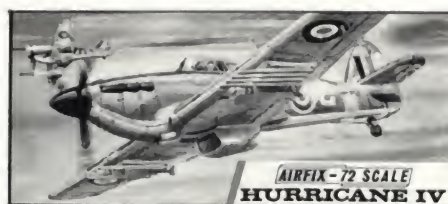
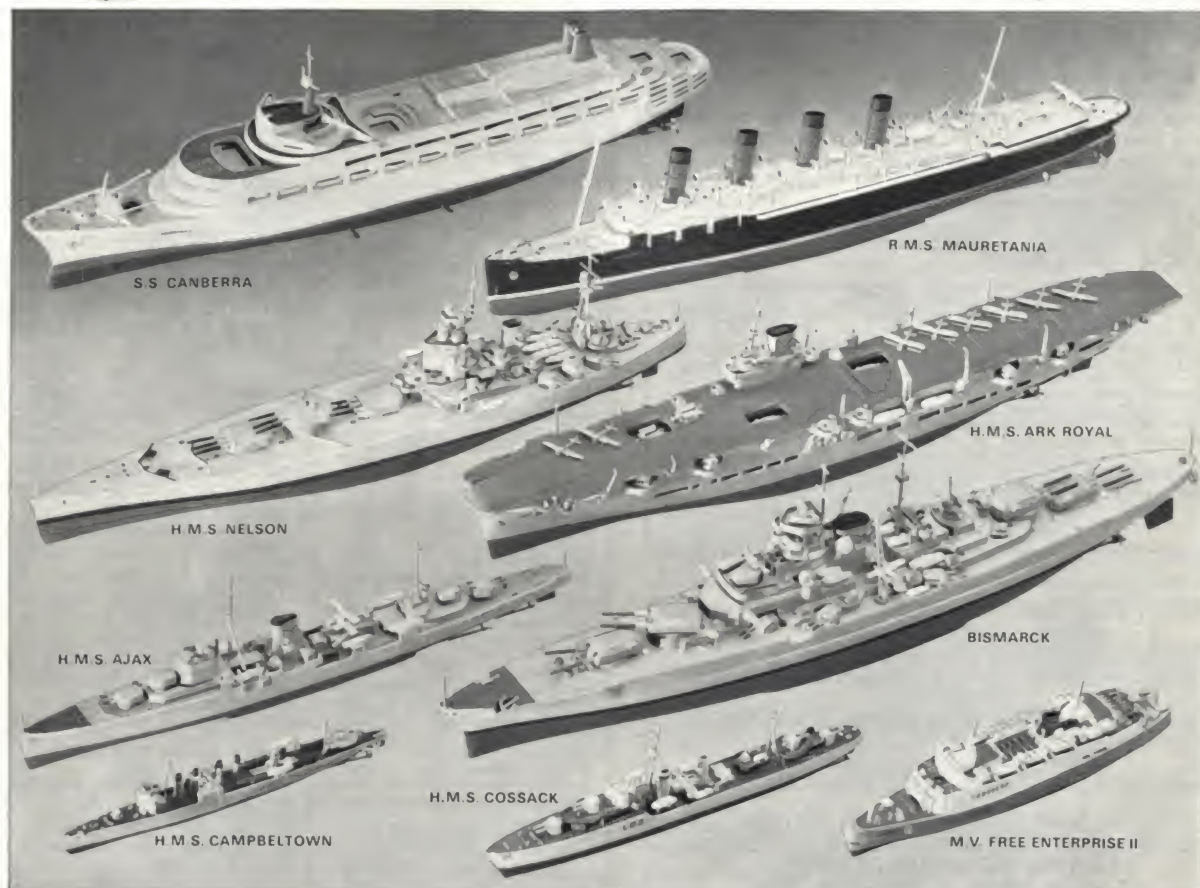


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